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PETROLEUM.

WILL THE SUPPLY OF OIL CONTINUE.

To us who live in an atmosphere of oil, says the Reno *Times*, this question seems simple. Yet there are many intelligent and enterprising business men who often make the enquiry, and make it too with such sincerity that we will endeavor to answer it for them.

It is estimated that the coal fields of England contain coal enough to supply the whole world for the next century, with ample prospects for more; yet those coal fields do not extend under so large an area of territory as do the oil regions of Pennsylvania alone, while petroleum has been found in paying quantities in Ohio, Virginia, and Canada, and is known to exist in many other portions of the United States, to say nothing of the supplies that have been gathered in Europe and Asia for centuries.

Many circumstances have co-operated to create the impression that the supply of petroleum would soon become exhausted. For many years it was sold only as a medicinal drug, and regarded rather as a quack nostrum than as a recognized curative. Within the present decade the development of a well producing a dozen barrels a day was sufficient to ruin the market for rock oil and make it a drug in the worst sense.—Then, the domestic uses for petroleum as a lubricator and as an illuminator had not been discovered. These being developed in rapid succession and each of them being of peculiar and unusual value, the demand for it was so sudden, so rapid and so great, that although the article has been well known for years, it became in active demand so suddenly that thousands began to hear of petroleum for the first time who had heard of rock oil and Seneca oil for their life time. This suddenness has of itself operated greatly to create the impression that its supply would cease as suddenly as its production had commenced, or in other words, a popular idea has prevailed that because the production of petroleum in large quantities has been sudden, therefore it will as suddenly cease; while the fact is that a sudden discovery of its immense importance as a lubricator, and as an illuminator, has led to a sudden search for it which has developed it in great abundance. People who realize this abundance without realizing the causes that have produced it, have created the popular idea that a sudden exhaustion will be a natural consequent of a sudden development.

No recent production is of such extensive value for so many uses as petroleum. Medicinally it has always been valuable under many empirical names; as a lubricator and illuminator it is unsurpassed; as a substitute for linseed oil the painter finds it of superior quality; to it we are indebted for new colors of ravishing beauty and dazzling brightness; its value as a producer of steam is claimed to be superior to coal, and in the process of refining there is no part of it that is not useful and valuable, down to the very dregs of the barrel. In view of its immense value to civilization, of its widely spread production, and from the fact that some springs have been known to produce steadily for *thousands of years*, we contend that a sudden exhaustion of the supply would be a phenomenon infinitely more wonderful than the sudden supply. The one is the result of natural laws developed by human industry; the other would be unparalleled among the wonders of nature.

Coal, iron and salt are not more widely spread than petroleum. These were undiscovered for centuries and for centuries have been obtained as largely as the most vigorous industry of man could procure them, yet no intelligent person now supposes that the supply of coal, iron or salt is nearly exhausted. Lead and tin are obtained only in limited quantities and cannot be regarded as widely diffused, yet tin was mined for centuries before the birth of Christ, and no one regards it or lead as nearly exhausted.

In our own time the sudden discovery of gold in California led to a sudden rush of population there, and many fortunes were lost and made under the excitement. This has only found a parallel in the excitement about petroleum. Then, as now, it was proclaimed by many an aspirant for prophetic powers that the supply of gold would speedily become exhausted, yet the supply continues, and new fields are being constantly discovered.

The supply of petroleum may safely be regarded as equal in durability to any of these staple productions, and it may as safely be declared that hitherto in the wonders of flowing wells we have obtained only the superabundance and out-croppings of this wonderful production. Heretofore, the search for petroleum has resembled rather a public scramble than the development of a staple production conducted on scientific principles. The machinery has been of the rudest, the exertions of a violent but spasmodic nature, difficulties too serious to be overcome by companies or individuals of limited capital have been regarded as insurmountable, and many companies have been so organized as to render petroleum in its widest acceptance unpopular.

All these things have combined to foster a popular idea that the supply is destined to be speedily exhausted. The idea we believe is now fast passing away and the development of petroleum is taking rank among the legitimate commercial enterprises of the day.

OIL WELL MACHINERY.

If inventors before putting their ingenuity at work in reference to oil-well machinery, would pass a few days a wells in course of drilling, they would find great profit. This is apparent from the form of a drill recently patented and intended to combine three tools in one. It consists of a round drill-shank which is bored out nearly up to the joint; at the cutting end, three-quarters of the width is formed for the bit of the drill, while the remaining fourth (which is short of the plane) is perforated and connects with the bore in the shank. The bit is screwed into it, and at the point of junction there is a valve to prevent the attritus from returning after it is forced into the bore or chamber. This is perforated near its top to permit the water pass out. The object is to drill, ream and sand pump simultaneously, only removing the tools when the chamber is filled. It is claimed that this tool will prevent oil crevices from becoming stopped up or choked while the drilling proceeds. Suffice it to say the sand-pump portion will not serve the purpose here; and it is a pity, for otherwise the tool is a good one.

A new seed-bag, the work of Mr. Fowler of Utica, N. Y., is eminently worth the attention of our oil men. Its construction is a cylinder of elastic substance, placed between two washers abont the well tube. The cylinder being smaller than the well bore is easily let down into it, and on reaching its place is compressed by screwing the tube itself down into a long coupling. This action squeezes the packing out so as to fill the hole completely. It can be adjusted to any part of the well, and may be made as loose or tight as the occasion may require. There is no loss of time or material; and in holes in which there is no chart the whereabouts of water passages, crevices, and the like may be ascertained in a short time by shifting the location of the bag.

Patent "grabs" of several paterns have been devised, some of them as liable to become fastened in the holes as the badly-fashioned tools they are intended to remove. The best yet offered is the contrivance of Mr. Mellen, of New York City. It consists of a pair of jaws, connected by a shank or sinker by means of links or straps in such a way that the jaws are allowed a little motion, endwise, away from the shank when any weight is attached to them, as when they have grabbed any heavy object. Besides this connection they are connected by a cam-joint, which operates as they are moving apart to close the jaws and make them seize anything that is between them. The tool is also provided with adjustable guides, which enable the operator to center it and make it descend along the axial line of a well or other place where it is used, and also to make it descend in a diagonal or inclined position, so as to seize any object which may be leaning against the walls of the well.—*Oil Springs Chronicle.*

California Petroleum Matters.

We understand, says the San Francisco Mining and Scientific Press, that the pump is now at regular work in the Lexington well; all the strata of oil rock that have been passed through by the well, have been opened by cutting the tubing at the proper points to admit of the seepage of oil into the well. As soon as the lateral pressure from the column of water in the well upon the several oil stratas has been removed by the pump, we may expect to learn the full capacity of this well for producing oil. We learn that quite a considerable quantity of oil is even now being raised; sufficient to warrant quite flattering expectations in the minds of the shareholders.

The new retorts recently erected at the petroleum works, six miles north of Santa Cruz, are working well turning out over 100 gallons of crude oil per day. The refinery is only run three days in the week. There was a cave in the main body of the material a few days since, removing a mass of oil-sand of over 100 tons in weight, the richest yet worked; after the cave a large amount of gas escaped from the cracks and fissures—Since the late rains several new indications have been discovered, showing rich signs of petroleum. It is now confidently believed that a stream of flowing oil might be struck by boring deep enough, in the valley below the works.

The Wilmington Journal says: "The Los Angeles Pioneer Oil Company's well is 330 feet deep; it sends forth daily about 1,500 barrels of water, with five or six barrels of oil. Gas issues from it, resembling the noted burning springs in western Virginia, sufficient to light several large hotels. Water was struck at the depth of 310 feet, in shale rock, which continued for ten feet, when sandstone was again found."

MINING.

PATERA'S PROCESS OF SILVER EXTRACTION.

Patera's process of silver extraction, extensively used in Germany, is likely to be tried on the Pacific coast, and with the promise of success. It is well adapted to antmonial ores, 12 per cent. of lead does not interfere with it, and it can be so economically conducted that it can treat profitably ores yielding forty dollars per ton. Poor ores by it do not require so long roasting as rich ones. By this process, after two kinds of roasting, chloride of silver is secured, and as a solvent of this cold dilute hyposulphate of soda is used instead of hot concentrated solution of salt. To dissolve one part of chloride of silver requires sixty-eight parts of salt, while the like amount of chloride of silver can be dissolved quicker by two parts of hyposulphate of soda. The latter solvent is continually reproduced in the process, and consequently a full supply is required only at the beginning.

Oxydizing Roasting.—At first the ore undergoes an oxydizing roasting, with gradual increase of heat—the heat especially augmenting by slow degrees when different sulphurets are present. Stirring the ore constantly, when a red heat is attained, some steam is introduced into the furnace, but not in quantities to diminish the heat much. Four hours completes the oxydizing roasting, and the ore is then discharged.

Chloridizing Roasting.—The ore thus discharged is ground fine, mixed with 6 to 12 per cent. of salt—more or less, according to richness—and for the decomposition of the salt, two or three per cent. of calcined green vitriol is addded. When red hot, steam is again used, and roasting is kept up with constant stirring of the ore, from 5 to 7 hours—or more if the ore is very rich. Chlorides of various metals result, and if the roasting has not been well performed, there will be sulphates remaining in the mass.

Purification and Dissolution.—The roasted ore is now ready for the first lixiviation, there being two.—the first, with hot water, dissolves and carries off the chlorides and sulphates of copper, iron, zinc, &c., (what sulphate of silver may remain is also carried off.) The second with cold dilute hyposulphite of soda dissolves the chloride of silver. In the first, charges of 400 pounds of roasted ore are thrown into tubs prepared for lixiviation like those used in Augustin's process of extraction, with solution of salt. A stream of hot water runs into the tubs for six hours, which carries off the chlorides and sulphates of the base metals. The mass thus purified is cooled with water, and is ready for the second lixiviation. In the second, the cold ore is placed in tubs corresponding to the others, but smaller. The cold solution of hyposulphite of soda is introduced and continued until in a tested sample no more silver can be precipitated.

Precipitation.—Polysulphide of sodium is the precipitant. In the precipitating tubs the dissolved chloride of silver is mixed with a solution of polysulphide of sodium, the whole solution well stirred. The silver is precipitated as a black sulphide. This is deposited in bags and well pressed and dried, then washed in warm water in filters, dried again and heated under muffles, to which the air has access. The sulphur burns off, and the metalic silver remains. Finally, the silver is melted in crucibles, some borax and iron added.

When the right proportion of precipitant has not been used, silver remains unprecipitated. To test this, when no more precipitant is observed, some of the solution should be taken into a glass tube and some drops of the solution of polysulphide of sodium added;—if a black precipitate follows, too little precipitant has been used, and more must be added to the solution in the precipitating tubs; but if, on the contrary, no precipitate is produced in the glass tube, another sample of the solution must be taken, and tried with some drops of the original solution, then a black precipitate shows that too much of the precipitant has been introduced into the tubs, and some of the original solution must be added.

As the fluid is used over again in lixiviation, a surplus of precipitant would render it unsuitable, as it would precipitate silver in the mass during the lixiviation,

Extracting Silver from Lead.

An invention has been provisionally specified for Don Francisco M. Millan del Real, of Bordeaux, the object of which is to extract silver from lead. The lead is run from the reverberatory furnace into a heating-pan, under which a strong fire has been previously made, in order that no cooling of the lead may take place, but that its temperature may be raised in a short time. The surface of the lead is skimmed, after which he introduces about one part by weight of carbonate of ammonia to 100,000 parts of lead contained in the heating-pan. To introduce the carbonate of ammonia he employs a perforated ladle with a spring lid. This instrument, with the carbonate of ammonia therein, is stirred about in the lead for about five minutes, when it is withdrawn, and a similar instrument, containing about one part by weight of sea salt to about 10,000 parts of lead, is introduced into the lead. This instrument is well stirred about in the lead for about ten minutes. If the quantity of silver contained in the lead be very high, then a proportionally greater quantity of sea salt is introduced. The surface of the lead is next skimmed and the products of this skimming are placed in small heaps ready to be placed, as hereafter described, in a close retort having a condensation chamber or chambers connected therewith by suitable passages. After this skimming is completed, about 1 per cent. of zinc is introduced into the remaining lead in an instrument similar to that used for introducing the sea salt and carbonate of ammonia. The instrument containing the zinc is well stirred in the lead for about five minutes each time. It is introduced until the desired quantity of zinc has been added to the lead. The fire is then withdrawn from under the heating vessel containing the lead, and the door of the furnace is left open in order that the lead may be cooled as quickly as possible. Directly the surface of the lead presents a slightly crystalline appearance; this crystallised part is removed and placed in heaps, which are then placed without delay in the retort already referred to. He first places on the bottom of the retort a layer of vegetable charcoal broken into small pieces; upon this the crystallised matter is placed, which is next covered with a layer of charcoal. The door of the retort is then hermetically closed and a fierce fire made in a furnace under the retort. After maintaining this fire for about two hours, the zinc which was contained in the silver and lead introduced into the retort will be found in the chamber of condensation in connection with the retort in a state of oxide of zinc.—When the distillation is completed, which may be readily ascertained by looking through a door into the condensation chamber, the retort is opened and the product of the second skimming introduced in order to combine it with the silver contained in the retort. The door is then closed for about ten minutes, after which the rich lead is drawn off from the retort into a pot, from which it is taken to be refined. It will be found that all the silver contained in the lead (excepting about 1½ to 2 parts of silver to every 10,000 parts of lead) is found reduced to a small volume, with sufficient lead for its cupellation. Directly the crystallised matters resulting from the third skimming have been introduced into the retort, the lead remaining in the heating pans or vessels is run off into a reverberatory furnace, where it is kept under the action of a fierce fire for about three hours. It is then drawn off and cast in suitable moulds.

The Silver Peak Mines, which were discovered only about one year since, have already yielded over one hundred thousand dollars in bullion. A shipment of twelve hundred pounds was lately received in San Francisco at one time.

A Pearl valued at five thousand dollars was recently shown the editor of the Panama Star and Herald, taken from the Pearl Islands in the Bay of Panama.

Important Discovery at the New Almaden Mine.

It was accidentally discovered some time since, that the slag or refuse from the furnaces of the New Almaden quicksilver mines contained a noticeable quantity of gold. Samples of this refuse have been submitted to a number of assayers in this city, all of whom have returned gold, varying in quantity from $10 to $20 per ton. We have further understood that about a ton of this refuse has been sent hither to be tested by working process, the result of which will soon be known. This refuse is so thoroughly calcined and desulphurized, in the process of extracting the quicksilver from it, as to be almost entirely soluble in water, becoming completely disintegrated. Hence it will require no crushing, but may be submitted directly to the simplest amalgamating process for the extraction of the gold, which is in a perfectly free state. The cost of such a process will be merely nominal. The quantity at the works can scarcely be less than 30,000 or 40,000 tons. The discovery, if it shall be verified, will be a most interesting and important one.—*Mining and Scientific Press, San Francisco,*

GAS.

FOREIGN GAS SUMMARY.

The Vestry of Islington has appointed a special committee to co-operate with the special committee of the Corporation of London in support of the inquiry into the operation of the Metropolitan Gas Act, 1860, which is about to be made before a select committee of the House of Commons. ...The Ashford Gas and Coke Company (Limited) have received the following tenders for the completion of the remaining portion of the builder's work: W. I. Adcock, Dover, 3,382*l.*; Alfred Vidler, Hastings, 3,298*l.* 5*s.*; Charles Wraight, Ashford, 3,049*l.*; and Steddy, Joy & Steddy, Ashford, 3,000*l.* Messrs. Steddy & Co.'s tender was accepted, and they will at once proceed with the work....The Leighton Buzzard Gas and Coke Company have declared a dividend of 8 per cent. per annum for the past year....At the Aylesbury assizes, a rather curious case has been tried. Mr. G. W. Harley, a builder, of Slough, was indicted for stealing gas from the Slough Gas and Coke Company. It had been observed all last year that Mr. Harley's meter registered very much less gas as having been consumed than in the corresponding quarter of the previous year; but on its being examined at Christmas, it appeared that no gas had been burnt since Michaelmas, though it was notorious to everybody in the neighborhood that Mr. Harley had been consuming it as usual. It was then found that a bit of solder had been dexterously inserted in the meter, so as to prevent the registration. Mr. Harley did not deny that the meter had been tampered with, but said simply that he knew nothing about it, and the judge observed that there was nothing whatever to show that he did, except the fact that he was the only person who could have been benefitted by the fraud. His lordship, therefore, withdrew the case from the jury. There have been serious disputes, for some time past, between the Slough Gas Company and some of their customers; and it was asserted by counsel for the defence, that if the case had gone on it would have been proved that several other meters had been tampered with in the same way....The Folkestone gas and coke company have declared a dividend at the rate of 10 per cent. per annum for the last half year. Plans for new works have been prepared and tenders sent in....The Chester gas company have yielded so far to force by reducing the price of their gas from 4*s.* 6*d.* to 4*s.*, but have refused to allow the 5 per cent. discount formerly given. Doubtless, when the Chester gas company reap the benefit to themselves of their forced reduction of price, they will be as thankless as others have been to those who have forced them to do what turns out to be for the benefit of the company no less than of the public, as in nine cases out of ten such forced reductions of price have been....The Cardiff gas light and coke company have declared a dividend at the rate of 10 per cent. per annum for the last

half year on their old shares, and of 8 per cent. on new shares....In the House of Commons, a motion of Captain Gridley has been agreed to for a return from every gas company established by Act of Parliament in the United Kingdom, stating the several Acts under which established, the rates per 1,000 cubic feet at which such company or corporation had supplied gas in the years 1864 and 1865, and the average price of the coal used by the company in each year for the same period; also stating the amount fixed (it should have been paid up), capital invested by each gas company, and the rate per cent. of dividend (and including bonuses and "arrears," it should have been) to the shareholders or proprietors on their shares in each year (in continuation of Parliamentary Paper, No. 55, of Session 1865). —*Builder.*

NEW METROPOLITAN GAS BILL.—A bill is to be brought before Parliament in the name of the Metropolitan Board of Works, which, among other things, provides that "the maximum price at which gas shall be sold by the said gas companies, or any or either of them, or by the said Metropolitan Board of Works, or district lighting board, under the powers by this Act vested in them, and each of them, shall not exceed the sum of four shillings and three pence per thousand cubic feet for cannel gas, and the sum of three shillings and sixpence per thousand feet for common gas, provided that when the profits derived from the "works" or "undertakings" of any or either of the said gas companies shall in any years exceed the sum of five pounds per centum per annum on the capital invested therein, exclusive of the reserve fund, then the price to be charged for gas shall be reduced in proportion to such excess of profits beyond five pounds per centum per annum."

Coal, its Use and Abuse.

A series of interesting experiments, "on the use and abuse of coal in our manufactories," has been made by Mr. Lewis Thompson, M.R.C.S., and from the communication to *Newton's London Journal*, he seems to have discovered that practically at this moment in our manufactories, with a kind of coal capable of converting 15 times its weight of water into steam, only six pounds of steam are raised per pound of coal consumed; in other words, more than one-half of the coal burnt under our steam boilers is thrown into the air and lost. This assertion is based upon the daily working of several different steam boilers in London, Manchester, Newcastle on-Tyne and Glasgow. Mr. Thompson has come to the general conclusion, that, except immediately after a charge of coal, the air from a well-fed furnace contains no appreciable amount of hydrogen, or hydrocarbon, or sulphurous acid; that the quantity of carbonic acid gas is about 6 per cent., the quantity of oxygen gas about 9 per cent, and the quantity of carbonic oxide gas about 8 per cent.—thus leaving us to infer that about 9 per cent. of the oxygen in atmospheric air is consumed by the hydrogen of the coal. Hence it appears that, in respect to the production of heat in furnaces, 9 parts of the oxygen of the air escape unacted on; and of the remaining 12 parts, 6 are converted into carbonic acid, 2 combine with the hydrogen to form water, and 4 are carried off in the shape of carbonic oxide gas. Upon these datas he states that the heat given out by coal is thus distributed—usefully employed in raising steam, 46 2-3 per cent.; loss from carbonic oxide gas, 41 2-3 per cent., and loss from radiation and imperfect conduction, 11 2-3 per cent. We have employed percentages as more generally intelligible than the fractions of a semi-circle expressed in degrees, according to which Mr. Thompson calculates. An improved steam-boiler furnace has been invented by Mr. Thompson for preventing the loss.—*Amer. Artizan.*

☞ M. PERROTT has communicated to the Academy of Sciences, at Paris, an account of his apparatus for producing very high temperature by means of coal gas mixed with atmospheric air. He unites a certain number of Bunsen's burners, so that their flames may form a single band of flame without penetrating each other, and thus obtains a column of heated gas, of intense calorific power, in such a position that its energy may be readily controlled. Into this he introduces air in such a manner that as little heat as possible shall be lost. With an apparatus consuming two cubic meters of gas per hour, he states that he has been able to melt 670 grammes of silver, and in 30 minutes to melt and run out into bars a kilogramme of copper.

WATER.

Novel Hydraulic Machine.

There was to be seen a short time ago, between the Pont Neuf and the Pont des Arts, a new hydraulic machine, invented by M. Roman, 37, Rue de Lille, Paris, for utilizing the force of currents and deriving a motive power therefrom. It consists of a large raft or barge similar in size and shape to the open washouses on many continental rivers. This is fitted with a series of transverse rollers, on which moves an endless chain passing under the boat, and fitted with a great many float-boards, 2 metres asunder. A greater surface is thus brought to play against the current than in an undershot wheel, which yields, even in the best condition, barely 30 per cent. of the theoretic force of the water. As in all ingenious and useful inventions, the principle on which this machine acts is of extreme simplicity and facility of application. If we suppose the float of an undershot wheel submitted to a current of water which impels it with a given force; if to this float we add a second parallel to the first, at 2 metres' distance behind it, the second float will also be impinged upon by the water. It has been clearly demonstrated by experiment that the effort exerted on the second float is equal to 75 per cent. of that brought to play upon the first. A third float-board will be subject to the same laws as the second, the result being, that a series of parallel floats will obtain from the force of the stream a motive power only limited by the velocity of the water and the constructor's design. Last year, a small trial machine, six of the boards being constantly immersed, gave by Prony's dynamometer, a useful effect of three, four, or even five times that of an ordinary undershot wheel.

The present machine has always thirty-four float-boards immersed; and though the velocity of the Seine is only 45 to 48 centimetres (17·72 in. to 18·9 in.) per second, in the trials made in the presence of our correspondent, the useful effect has been on an average 12 times greater than that of ordinary wheels. As to the applications of this hydraulic engine they are innumerable. Geared into a series of pumps, either for the supply of towns or for irrigation, it is capable of becoming a great source of economic power; while the working expenses are reduced to the charge of simple inspection, no manipulation being required.

New Water Meter.

Messrs. Roberton-Brisson & Coignard have invented a new meter for measuring supplies of water in such a manner that the smallest quantities, as well as the full supplies are accurately measured, whatever be the velocity or pressure of the quantity delivered; it measures the quantity, without any sensible intermission of the current or diminishing the pressure in an appreciable degree beyond what may be the friction of the parts of the apparatus. The meter consists of a pair of coupled cylinders, in which pistons move, giving motion to two slide valves, which open and shut alternately the entrance and exit of the water. The two cylinders are of cast-iron, as are the rest of the pieces except the slide valves and the rods, which are of copper and brass. The water enters into the valve-box, passes into one of the cylinders and acts on the piston. When this has arrived near the end of its stroke, the ports are partly open to admit water to the second piston, so that it may commence its course when the first has finished its stroke; consequently there is no interruption in the flow, nor any intermittence in the registering of the quantity passing through the meter. The reciprocating motion of the slide-valves, which are fixed immediately upon the end of the piston-rod, sets in motion a small lever, in connection with the register and dial plates which are similar to those in use for gas meters. Constructed in the workshops of Coignard & Cie., this new machine has received practical sanction on a large scale. The towns of Nantes and Angers, the Imperial school of arts and manufactures, the administration of the Versailles Water-works, those of Marly and St. Cloud, and the water service of the Imperial Palace of Meudon, have employed it to their satisfaction.

NON-COMPRESSIBILITY OF WATER.—It is often necessary, before re-melting cast iron, to reduce large masses of it to pieces. This, by the method ordinarily used, is both troublesome and difficult. The Scientific Review says,—A simple and ingenious mode of producing the required fracture has been recently used in France. It consists in drilling a hole in the mass of cast-iron for about one-third of its thickness, and filling the hole with water, then closing it with a steel plug, which fits very accurately, and letting the ram of a pile-driver fall on the plug. The first blow separates the cast-iron into two pieces.

MISCELLANEOUS.

Entered according to Act of Congress, in the year 1866, by J. W. BRYANT, in the Clerk's Office of the District Court of the United States, for the Southern District of New York.

TREATMENT AND USES OF PEAT AND PEATY MATERIAL.

BY J. BURROWS HYDE.

(*Continued from page 293.*)

With a view to confine myself to such facts as would be interesting and not wearying to the reader, I have tried to avoid multiplicity of details and investigations; but having been requested to be less scrupulous I venture to add somewhat of matter which would have been more in place in the preceding number.

"Some of the peat bogs in the north of England occupy the place of former vast forests of oak, pine, fir, and other large trees, which have been prostrated by high winds. The fallen timber seems to have dammed up the streams, where from collected drift the water has accumulated, forming sloughs or ponds. The forests seem to have been succedeed by smaller growths of woody shrubs that have added to the accumulation of vegetable matter, shallowing the water progressively until at last it has risen to the surface and produced grasses and mosses, finally forming a meadow bog of solid peat and ulmin.

In the explorations, the undecomposed wood is found lying in one general direction at a depth of twenty feet, coinciding with the stumps broken off above the roots. The pines, firs, and other turpentine trees having been more or less preserved in many cases, where the oak, birch, etc., have quite or nearly disappeared; and in some cases the pines have changed to a substance resembling asphaltum, which the people burn as a substitute for candles." (*Sir Chas. Lyell.*)

"In England the Hotfield bog is well known to occupy the place where a heavy forest existed in the time of Julius Cæsar, 1800 years ago, and through which the Romans constructed one of their military roads, all of which, with the road is now covered with many feet of "peat," from which fir trees have been taken ninety feet in length, and used for masts and spars for the British navy." (*Sir Chas. Lyell.*

"In Scotland 'peat' has been explored to the depth "of one hundred feet from the surface."

At a considerable depth from the surface in some localities the ulmin is found changed to a substance resembling brown asphalt, yielding a rich and brilliant gas quite equal in quality and quantity to that of the best cannel coal. This is said to be the case with peaty matter found near Chicago, Ill.

"In warm climates woody matters exposed to saturation by water, instead of forming "peat," as in the north, are destroyed by insects and by slow combustion or putrifaction.' (*Sir Chas. Lyell*)

Of the Lees—Eng.—peat, it is said the green 'peat

holds 40 to 70 per cent. of water, and one man working under favorable circumstance will cut from nine to twelve tons per day. 100 pounds of this 'peat' yield —Brown 'peat,' 71 lbs.; water, 26 lbs; ash, 3 lbs. Black 'peat,' 78 lbs.; water, 26 lbs; ash, 4 lbs."

"The specific gravity of the best air-dried ulmin is about equal to two-thirds that of anthracite coal, and its heating effect about the same proportion, unless it is pressed when it is much increased, according to the density."

As the ulmin when cut from its bed is more or less spongy, and after draining is porous, it is always when designed for fuel, best that it should be manipulated or kneaded, to break up the cells and render it more homogenous and compact. This may be done in any kind of pug mill, or by passing it between rollers, or through a common cider mill, or by any other convenient means. There are however several machines invented expressly for the purpose, but too expensive for private use. By the former mode it will be found effective easy and cheap, and pay well for the trouble. It should afterwards be spread in cakes and dried.

In illustration of the diversity of opinion upon this material for calorific uses I give the following additional items. In fact, the qualities of ulmin vary so much that one may as well compare it at once to the general term of wood when used as fuel; as when told that a person obtained a certain duty from a steam boiler or engine with one cord of wood, it would be quite natural to ask if it was wet chestnut, or dried pitch pine, or hickory. So with the kind of ulmin, and also the manner of its preparation.

A distinguished manufacturing firm in Massachusetts used 10,500 tons of "peat," chiefly in annealing wire. It was cut and dried, and drawn two and a half miles to their works, at an expense of about $2,50 per ton before the war, and $3,50 during the war, and at the same time using large quantities of coal, wood and coke. They found that 80 bushels of the "peat" was about equal to one cord of chestnut or hemlock wood —80 bushels should be about equal to 1850 pounds.— They state the "peat was a good average quality," but that they had seen peat fifty per cent. better. Their land cost $75 per acre, which was worthless after digging the peat.

Another party in the same State sold "peat" at $5 to $8 per cord—say one and a half tons—good oak wood being the same price at the same place.

In a Thames (Eng.) steamer, the furnaces being constructed for coal, 12 cwts. pressed "peat" was found equal to 28 cwts. Newcastle coal for generating steam.

In another case in England, in a locomotive, the results were, with "peat" 10 lbs. steam in 1 h. 10 m, 25 lbs. steam in 1 h. 32.; while with coal it took 2 h. 25 m. to get steam to 10 lbs., and 3 h. to carry it up to 25 lbs. 11¼ cwts. of "peat" kept steam up to 30 lbs. for 8 hours, requiring 17½ cwts. coal to do the same.

In another case, in a locomotive running upwards of three months over 70 miles of road, and using "peat," it showed a saving by weight of over 30 per cent. over coal, using coal furnaces and flues, with fire doors open all the time, and dampers down.

Charcoal from ulmin, for whatever purpose and in whatever manner employed, depends for its usefulness upon the purity of the raw material; for as has been shown, the better the material the less "ash," and of course the more ash the less heat or other benefits from the charcoal, the excess of "ash," with a trifling exception, being always due to the foreign matter which has been mechanically mixed with raw material. Good air-dried ulmin will yield one third its weight in charcoal, containing at least 90 per cent. of carbon.

Ulmin charcoal has been extensively used in Europe for smelting iron and other metals—as it is free from sulphur and other impurities found in coal and coke, peculiarly adapts it for treating iron. At Horwich, Eng., "in a furnace 26 feet high, and using a mixture of red hematite and Staffordshire ore, an average of one ton of iron was smelted with 1½ tons of peat charcoal; and it worked equally good results in the puddling and air furnaces. 80 tons of the iron was made into chain cables, and proved the best we had ever made." The "peat" was not pressed, but was puddled —kneaded—and formed into slabs or blocks before burning.

The adaptability of ulmin for smelting iron as a substitute for wood charcoal or coke renders the purity of the material of the highest importance, inasmuch as that whether it is used raw-pressed or carbonized, the the charcoal is ultimately the chief agent for reducing the ores; hence, when it is combined with foreign mineral matter it is impoverished if not worthless. And for the manufacture of steel, good ulmin charcoal is superior to any other substance.

It is a common error to suppose that when earthy matter is found in the surface material—where it is readily detected—the deeper and more compact ulmin in the same bed will be of better quality. This, although sometimes true, will be generally found incorrect, for the reason that where the mixture of this deleterious and incombustible matter is found in the surface deposit, it is quite probable to have existed from the beginning of the bed, and the mixing has been general, accumulating from year to year in each successive increase of depth, the lower portion holding that which has gone down with it from the surface.

Good ulmin charcoal is double the density of that from good hard wood. In a series of trials by Chas. Wye Williams, Esq., of Liverpool, Eng.,—a gentleman who has for upwards of twenty-five years made the perfect economy of fuels and steam his special study—furnishes a "Report of experiments on compressed peat as compared with other heating mediums, the specific gravities as relate to that of water at 1000:

Peat compressed into thin cakes,	1160
do coke made therefrom,	1040
do compressed into thick cakes,	910
do coke made therefrom,	913
Hard dry wood—oak, ash and elm,	800 a 885
Charcoal from the same,	400 a 625

Thus it will be seen that compressed peat is more dense than hard wood in the relation of 1160 to 885, and is, as compared with the lighter woods—poplar, pine, &c., nearly double; while the charcoal from the compressed peat is nearly double that of hard wood charcoal." Of the calorific power he says: "The usual mode of making assays of this kind by converting water into steam, does not lead to comparable results, unless made on a large scale and are continued for a considerable time." He should have added what must have been inadvertently omitted—that it is important to have each kind of fuel treated in an apparatus particularly fitted for it.

"And inasmuch has the absolute quantity of heat generated during the combustion of fuel is in exact relation to the quantity of oxygen consumed, the best method for ascertaining the actual heating property is by treating it by the litharge process." The proportions of those trials gave the heating values in equal weights as follow:

Pure carbon,	340
Hard dry wood,	100 a 140
Charcoal from the same,	390 a 325
Good coke,	200 a 285
Charcoal from surface peat,	277
Charcoal from lower peat,	250
Pressed peat,	137

"But the intensity of the heat is often of more consequence than the quantity; and the intensity depends much upon the density of the fuel. Thus charcoal cannot produce so high a heat as coke, inasmuch as it is common to reckon that wood charcoal occupies half the space of an equal weight of coal coke; and in this respect the dense peat charcoal and coke are about equal, which comparasons are irrespective of the foreign matter that may be present, and which may injure the iron, whether it may be for rendering it from the ore, or working it by fire generally, or when used under boilers for generating steam.

"It is well known that many foreign substances enter into the composition of coal and coke, exercising injurious effects upon iron and steel in the furnace or the forge. In this respect the importance of peat charcoal becomes apparent. Iron is not only sooner brought by it to welding heat, but is found to work softer and with less scaling, which is so injurious, particularly for welding. These facts I have proved in the furnace where large boiler plates are heated, and also in forge operations, where I have found even the worst iron to be improved by it in quality.

"I have found that charcoal from the light portions of the peat taken near the surface, and which is generally rejected for domestic fuel, is superior to that made from the deeper and more dense portions of the mass."

This last conclusion of Mr. Williams I am satisfied by my own experiments will not always hold correct, and must have arisen from the particular locality from which his material for the experiment referred to was taken. He obtained it from Lancashire, and adds that the "Irish peat is superior in purity, containing less incombustible matter."

In a series of trials by M. Berthier, to test the smelting values of different fuels, he found the following proportionate results:

Oak, Beech, Birch and Pine wood,	81 per cent.
Maple, ash and poplar charcoal,	68 "
French peat,	26 "
German do,	34 "
Irish do,	45 "
French peat charcoal,	49 "
German do,	64 "
Irish do,	84 "
Newcastle coal,	70 "
Glasgow do,	56 "
French do,	67 "
German do,	48 "
Spanish do,	49 "
Austrian do,	43 "

Ulmin charcoal has been long used by blacksmiths in Ireland, particularly by horse shoers, many of whom make it in small quantities as they require it. They pile it up in cone shape on the ground, set it on fire and cover it with earth; and when burned extinguish it with water. When made in larger quantities a chamber or pit is dug in the the earth or in the bog itself, which they fill with dried peat, and when well fired, it is covered with wet peat and smothered down. This is their most economic method, by which they usually get one ton of charcoal from two tons of peat, that is considered equal to the best English charcoal.

In burning any material for charcoal, the closer and more solid the material be packed the larger and better the product will prove; hence all interstices should be avoided if possible.

If the peat be dried and ground into granules of a size of say 30 to the inch as the coarsest, which is easily regulated by the mill, and afterwards be screened, a large part of it will be found in the condition of fine powder, which should be kept separate; and the coarser portion may be further screened into distinct sizes of granules, say three or more. The expense of grinding and screening will add but little to the cost per ton. If in this condition if it be enclosed in sheet-iron cases and distilled in retorts the fine portion will be converted into fine black powder, which may be used for paint, blacking, fire works, printing ink, and other uses, and the granulated portion into a material so closely resembling ordinary gun powder as to defy detection by the eye alone; but under the microscope each granule will be found porous, which peculiarly fits it for discoloring fluids, which effect cannot be obtained if the Ulmin be carbonized before grinding, as the sponge-like feature is thus destroyed, as by closing the pores the deodorizing surface is greatly reduced. It is also a superior article for filtering water, and many other valuable uses.

The quality of Ulmin charcoal is always improved if burned or distilled in closed retorts, and it is best to first place it in cases of sheet iron, provided with close covers, the whole fitting the interior of the retorts. The gas may be conveyed into the retort furnace and burned there, thus greatly economizing the process, or it may be conveyed through pipes for other heating purposes, and when the process of distillation is complete the retort is opened, the cover of the case closed, thus shutting out the air and preventing the forming of ashes; the case be withdrawn and placed away to cool, another being at once inserted in its place. The sheet-iron cases will last a long time, as they chill at once on being withdrawn, and when in the retort there is no action of oxygen upon the iron.

Finely powdered peat charcoal has been extensively used as a deoderizer. It absorbs 925 times its volume of oxygen gas and 50 per cent. of water, containing 90 per cent. of carbon, while animal charcoal has but 10 per cent.; it also absorbs large quantities of fœted gases. While the powder of both Ulmin and Ulmin charcoal absorb large volumes of gases, water will wash them free from the charcoal, and not from the raw Ulmin—and this latter will absorb ammonia, whereas the charcoal does not. These facts prove the adaptability of the raw powder for fertalizing uses.

The charcoal powder, however, has a peculiar effect when applied to and incorporated in the surface soil of flowering plants—it causes the colors to greatly increase in intensity.

It has long been used by pyrotechnists, in Europe, in the compositions for fire works, particularly for colored fires, giving them greater brilliancy than could be effected by any other carbon. The artificer of Vauxhall Gardens, London, who declares it to be twenty per cent. more combustible than any other charcoal, long retained the secret of the material used by himself which gave his works a wide reputation for their superiority.

The fine dry Ulmin powder has other valuable uses. If mixed in equal parts with finely powdered guano it not only serves as a corpus for that rich manure, instead of ashes, sand or earth, but completely deoderizes the guano, destroying its offensiveness when kept in close apartments, but prevents its caustic action on incipient vegetation and holds the ammonical salts, preventing their solution with rain water, and consequent loss by percolation into the deep soil. It also assists the decomposition of the phosphates, yielding the fertilizing virtues of the manure gradually as required by the plants, and, doubtless for reasons before given, adds a nourishing property by its own decomposition.

Powdered Ulmin, if mixed with the marc or pommace of fish, resulting from the oil works along the coast—which send forth to the surrounding districts such disgusting and intollerable odors—will effectually prevent these nuisances and immensely improve the quality and quantity of the manure they have for sale, but which, in the condition now used, prohibits it being placed near any habitation of decent people.

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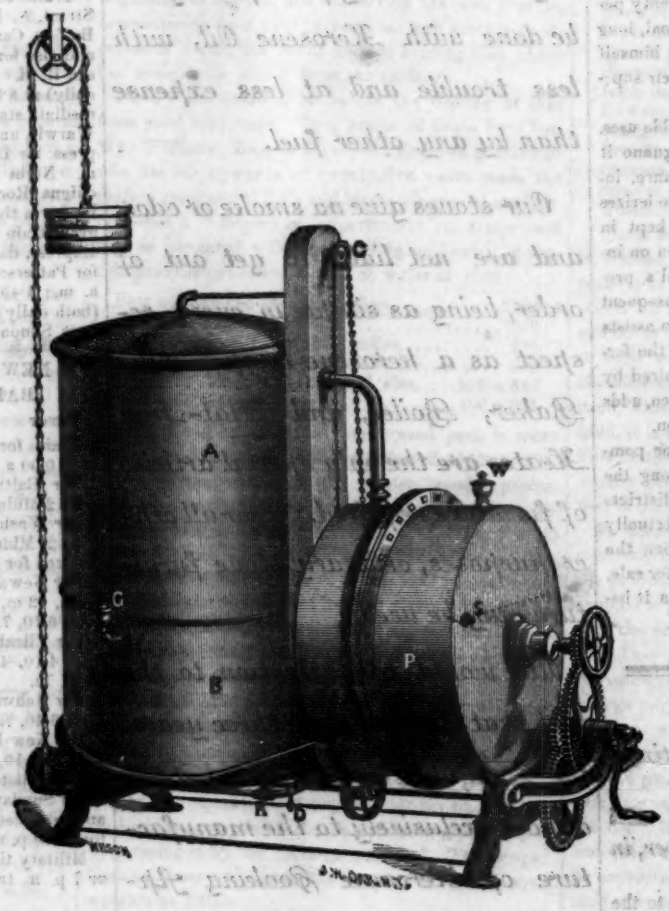

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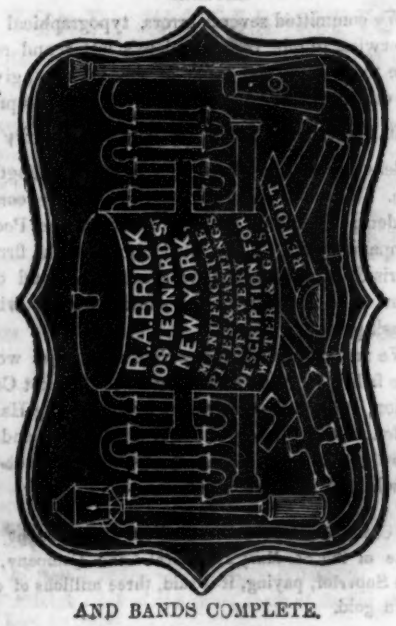

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The Mining and Petroleum Standard

AND

AMERICAN GAS-LIGHT JOURNAL,

PUBLISHED ON 2D AND 16TH OF EVERY MONTH.

JAMES W. BRYANT, M. P. CALLENDER, } EDITORS.

MONDAY, APRIL 16, 1866.

THE MINING & PETROLEUM STANDARD AND AMERICAN GAS-LIGHT JOURNAL, is published at Tribune Buildings, No. 1 Spruce St. on the 2d and 16th of every month, and is a recognized official organ of—

LIGHT, HEAT, MINING INTERESTS,

PETROLEUM, WATER-SUPPLY, AND

SCIENTIFIC SUBJECTS GENERALLY.

JAMES W. BRYANT, PROPRIETOR.

M. P. CALLENDER, PUBLISHER.

PROF. C. ELTON BUCK, CONSULTING CHEMIST.

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☞ *Private Office, No.* 111 *Pearl street.*

☞ The Office of this Journal will be removed on the FIRST OF MAY to 22 Pine Street, to which place all letters or communications for the paper should be addressed.

☞ Our subscribers would confer a favor upon us by remitting *checks, or Post Office Money orders*, as we are frequent losers by money sent by mail.

☞ We should be pleased to make our journal an organ of intelligent discussion for those of our subscribers and readers who may wish to gain, or give information on the subjects to which our columns are devoted. We solicit letters from those who make the study of gas a pleasure as well as a profession.

Errata.

We committed several errors, typographical and otherwise, in our correspondent's letter and reference thereto, in last issue of the JOURNAL, giving the dimensions for service pipes. The 1·9 as printed in the formula should be G. L.; thus—$D^5 \sqrt{\frac{H.D}{G.L.}}$ G denoting the specific gravity, and L the length of pipe. We also unintentionally made our correspondent, Mr. McFadden, the author of the Pocket Companion, and also isolated him from the firm of Harris & Bro., of which he is a member, and only claims to be compiler of the work, for all of which we ask pardon.

We are requested to say that if any gas works have failed to receive a copy of the Pocket Companion, one will be forwarded by addressing Harris & Bro., 1117 Cherry street, Philadelphia, and all who have or may receive one, and have not acknowledged it, will confer a favor by so doing.

A COMPANY of French capitalists have bought the estate of the St. Mary's Mineral Land Company, on Lake Superior, paying, it is said, three millions of dollars in gold.

"A Word to the Wise," &c.

Several new advertising patrons have favored us with their *cards*, in this issue of the JOURNAL, to which we gladly refer our readers, knowing it will be their advantage and a pleasure to call on these parties for any of the variety of goods they advertise which may be wanted. We would mention the following, which appear for the first time, and will be found on the following page:

Messrs. R. S. DELISSER & Co., dealers in Mineral Lands and Patent Rights, it will be found a pleasure to consult with upon anything connected with their business, and parties entrusting business to their hands may rest assured of being honorably dealt with.

O. B. GRAY, dealer in India Rubber Goods of all descriptions. Any article that is made from Rubber—and their name is legion—can be found at his place.

Messrs. MOREY & SPERRY, dealers in all kinds of mining machinery, have already a reputation which no word of ours can improve. Their machinery is acknowledged the best in the world, and all work contracted by them is done upon honor, and always satisfies.

Messrs. WM. S. CARR & Co. have the exclusive manufacture of the best water closets and urinal valves in use. Parties wishing goods of that description should not fail to secure these. They also manufacture and deal in Plumbers' goods of every description.

As an advertising medium, the JOURNAL is daily growing in favor, and for the particular class of goods to which its columns are adapted it is surpassed by no other journal in New York. Business men find an investment of a few dollars in an advertisement in its columns one which brings a sure and quick return, and being such should commend it to advertisers generally, and a rapid increase of patronage assures us such is being the effect.

News From the Pacific.

SAN FRANCISCO, April 10, 1866,

A strike took place yesterday among the miners of the New Almaden Quicksilver mine. The grievances complained of were their being compelled to lease houses, and the price of supplies, of the company. They hold possession of the mine, and allow no one to work, but have committed no violence.

SAN FRANCISCO. April 11, 1866.

Quicksilver has advanced ten cents a pound, in consequence of troubles at New Almaden. Six of the rioters there have been arrested, and the rest will be shortly.

SAN FRANCISCO, April 12, 1866.

The proprietors of the New Almaden mines say the recent disturbance grew out of the fact that 71 squatters, not in the employ of the company, refused to comply with the order to sell their buildings to the company and move. Ejectment suits then commenced, when the squatters drove the miners from work. The ringleaders were arrested, and warrants had been issued for others. The work at the mines was still suspended. The rioters are on trial to-day, at San Jose.

There was a further shipment of $500,000, not manifested, per Golden City, which sailed April 10, on Government account.

THE Candle Fish—a most curious specimen of the finny tribe—is caught on the coast of British Columbia. It is of marvellous fatness, and the natives use it as a lamp, by drawing a rush pith through it, when it will burn steadily until consumed, and give a good clear light for reading or other purposes.

New Artificial Lights.

M. SAYERS, a French chemist, has discovered a good substitute for Magnesium, which produces a brilliant light, possessing very high actinic power. The new light is produced by the combustion of a mixture of twenty-four parts of well dried, pulverized nitrate of potash, with seven parts of flour of sulphur and six of the red sulphide of arsenic, and the mixture can be sold at about 3d per pound. Its light is, therefore, much cheaper than that of magnesium, to which it is said to be but slightly inferior in actinic energy.

The Italian journals announce the discovery of a new artificial light by Professor Carlevaris, of Genoa. The Carlevaris light is oxy-hydrogen-magnesian (not a costly substance) in a mixture of oxygen, either with pure hydrogen or with common gas. The light is described as white, rich in actinic rays, steady, and giving little heat. For photographic purposes it is said to be excellent. The light is said not to be affected by currents of air, and to be extremely cheap; a light equal to four composition candles is set down at two centimes per hour. An experiment was tried at the light-house of Geona. The new light is reported to have proved superior to that of the ordinary lamps in use there, which represents twenty-three carcel lamps, and to have cost not more than 3d an hour.

The Artesian Wells of Chicago.

The wells, now discharging one and a quarter millions of gallons per day of the purest water, continue to excite much wonder and curiosity. They are located near the city limits—about three miles from the City Hall—are 700 feet deep, and discharge an immense volume of clear cold water. In several respects these wells are anomalies; first, the water which rises to the surface stands at 57 deg. Fah., which is below the mean temperature of the locality, while in all other deep wells the temperature increases in proportion to the descent, so that no water is found at a greater depth at much less than 75 deg., and in the great wells at Charleston, and in the basin at Paris, the range is up to 85 deg. and 90 deg. Then this water is free from the unpleasant and disagreeable mineral taints so common to Artesian wells. It is certified under chemical analysis, to be the best article of drinking water in the world, and from the force and power with which it comes to the surface—it has a head of 125 feet above the level of Lake Michigan—there seems to be no doubt but that by an enlargement of one of the wells to the diameter of 20 inches, a sufficient supply, estimated at 17,000,000 gallons per day, could be obtained to meet the demands of the city for years to come, and this would flow into the reservoirs without the aid of expensive engines, steam pumps and fuel. Another curious feature in regard to those wells, and one which geologists have not yet explained, is found in the fact that they are located in no great valley or depression, like the basins of Paris and London, but are sit on the level prairie, surrounded for hundreds of miles by country of a like character. This fact, taken in connection with the low temperature of the water and the great head of the fountains, seems to indicate that it has a source far in the north or northwest, beyond Lake Superior and beyond the Mississippi, perhaps away off in the Rocky Mountains.—*Mechanics' Magazine.*

LEAD MINING is exciting fresh interest in Kentucky. In Owen County work is progressing under favorable auspices; considerable quantities of ore have been taken from the mines bordering on the Kentucky river, and on Twin creek a furnace has been put up, and small amounts of lead have been made suitable for the market.

A Zinc and Lead Mining Company has been formed by Pittsburgh and Philadelphia parties, with a capital of $500,000, for the purpose of developing certain veins of lead ore lying in Crittenden County.

Mining Reports from Nevada.

The Assessor of Humboldt county reports for the year ending September 30, 1865, $100,000 of bullion as the product of that county. The total yield of the Sheba mine is reported at $70,000, the ore averaging $140 per ton. The Assessor of Lander county, says that during the last six months of the year, 36,000 tons of ore were reduced in the county, at an average cost of $75 per ton, and 10,000 tons were taken out and laid by, to be reduced when the expense shall not exceed $50. The number of miners was estimated at 1,000. This county has three water-power quartz mills, with thirty stamps in all; and sixteen steam quartz mills with one hundred and thirty-three stamps. The Surveyor and Assessor of Nye county makes a joint report in which they state that there are four quartz mills in operation in Nye, and four in progress, one at the Murphy mine, Twin River district, with 40 stamps, to cost $150,000. The number of miners is estimated at 500; the total amount of bullion is placed $100,000. The cash working capital introduced within the year, is stated at $1,000,000.

One of the largest refracting telescopes in the world is one just received at the Chicago (Ill.) University. The length of the instrument is 23 feet, and weighs three tons; the diameters of the circles are 24 and 30 inches, and the object-glass 18¼ inches in diameter, and weighs 100 pounds.

We have received from a valued correspondent, but too late for insertion in this paper, a very interesting communication relative to the differences between Gas Companies and Gas Consumers. It will appear in our next issue.

The steamboat *Rip Van Winkle*, now running between this city and Troy, has just been refitted throughout. New boilers have been put in by one of the best boiler-makers in this city; also upholstered and re-painted. She is under command of Capt. O. T. Simmons. Passengers travelling on the Hudson River steamers will do well to choose this boat, as she runs in connection with trains leaving Troy in the morning.

R. L. DELISSER & CO.,

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MAGNETIC LIONS,
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Perce's Magnetic Globe has won the warmest ecomiums from the press; from men of science, and from all lovers of the beautiful and useful in science, in art, wherever it has been seen. As an article of HOUSEHOLD FURNITURE, it is elegant and useful; "as useful," says the New York *Independent*, "for the entertainment and instruction of the little ones at home as the piano, or any other instrument for domestic amusement and instruction."

"Perce's Magnetic Globes and Magnetic Objects afford a wide field for many pleasing and surprising experiments; and with it, aided by the explanations which accompany it, our young readers will be able to conjure up many interesting illustrations and games which they will find profitable and amusing."

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Perce's Magnetic Globe, 5 in. dia., Plain Stand,	$ 5
Perce's Magnetic Globe, 5 in. dia., Brass Meridian,	7
Perce's Magnetic Globe, 7 in. dia., Plain Stand,	10
Perce's Magnetic Globe, 7 in. dia., Brass Meridian,	25
Perce's Magnetic Globe, 12 in. dia., Plain Stand,	20
Perce's Magnetic Globe, 12 in. dia., Brass Meridian,	25

The Globes of all the above sizes and styles are finished in the highest style of the art, are mounted on polished black walnut stands, and will form an elegant and attractive ornament for the parlor, library or drawing-room.

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Every SATURDAY, from pier 13 North River.

Have been placed on the route to Savannah by the Atlantic Mail Steamship Company of New York, and are intended to be run by them in a manner to meet the first class requirements of the trade.

The cabin accommodations of these ships are not excelled by any Steamers on the coast, and although their carrying capacity is large, their draught of water enables them to insure a passage without detention in the river

San Jacinto, Saturday, March	3	San Salvador, Saturday, Mar.	24
San Salvador, ...	10	Missouri, ...	31
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Returning, leave Savannah every Saturday at 3 o'clock, P. M.

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I offer special inducements to parties wishing to purchase, as my Pipe is Smooth, regular in weights, and cast vertically.

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Wire, Cast Iron and Bronze Railings,

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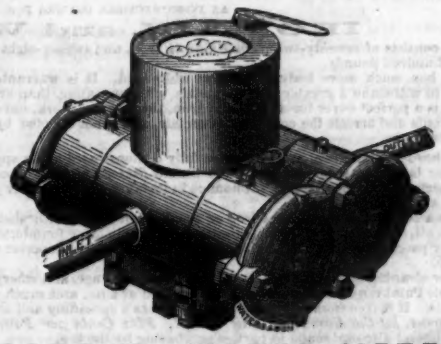

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with such ease and certainty of motion, as to offer no appreciable obstructions to the flow of water in the pipes to which it is connected, as it runs and registers upon three inches head, or when delivering the smallest stream. These qualities, with its low cost, have caused its extensive adoption by corporations and individuals, in many of our largest cities.

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275 "	42	69 00	18 00	87 00
375	36	94 00	22 00	116 00
450	44	112 00	25 00	137 00
600	02	150 00	30 00	180 00
750	39	188 00	35 00	225 00
1,000	64	250 00	42 00	292 00
1,200	48	300 00	45 00	345 00
1,400	50	350 00	50 00	400 00
1,600	52	400 00	54 00	454 00
1,800	55	450 00	60 00	510 00
2,000	58	500 00	62 00	562 00
2,500	60	625 00	72 00	697 00
3,000	63	750 00	85 00	835 00
3,500	66	875 00	87 00	962 00
4,000	69	1,000 00	100 00	1,100 00
4,500	72	1,125 00	1'3 00	1,238 00
5,000	75	1,250 00	125 00	1,375 00

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100	18	25 00
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It has much more body than red or white lead. It is warranted perfectly water and fire-proof and to withstand a greater heat on metals, without scaling, than any other paint in use.

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This Paint requires no more oil than dry lead or zinc, and much less than the ordinary mineral paints. It is free from any waste, and possesses a spreading and covering power unequaled.

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A Barrel or Ton will be forwarded to any gas companies desirous of testing its qualities, for which there will be no charge if it does not give entire satisfaction as being the cheapest and most durable of all other Paints in the market.

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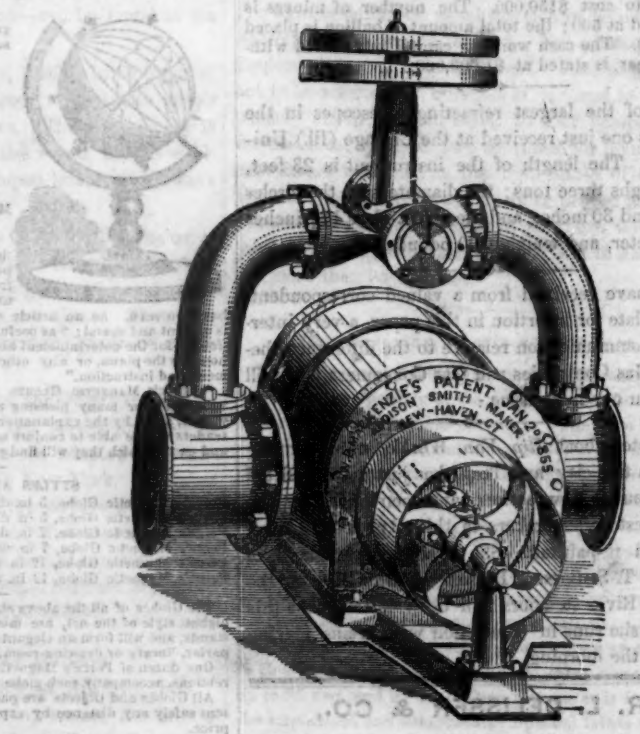

They are made to pass from 4,000 to 150,000 cubic feet of gas per hour; will increase the tion and illuminating power of the gas, and add very much to the durability of the retorts, clay or iron. The Compensator obviates entirely the necessity of water-joints, is compact, dur cleanly, not liable to get out of order, self-acting, quiet, and certain in its operation.

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The Blower is a Force Blast machine, durably built, and can be driven with one-third the p r required to drive the ordinary Fan. The Cupolas are manufactured in sizes to melt from 1 ton to 20 ns per hour, will save one quarter of the time required by the old style Cupola, and 25 per cen nel. Address

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67 Exchange Place. [$2,000,000.]
J. Bryan, Pres. J. A. Wisner, Sec.

HOFFMAN PETROLEUM CO.
10 Pine street, [$5,000,000.]
G. W. Abbe, Pres. J. P. Hogarth, Sec.

HOME PETROLEUM CO.
10 Pine street. [$5,000,000.]
Josiah Oakes, Pres. E. Dwight, Sec

JOHN ANDERSON PET. CO.
106 Broadway, [$2,000,000.]
A. G. Curtin, Pres. E. O. Perin, Sec.

LITTLE KANAWHA & ELK RIVER,
61 Cedar street, [$6,000,000.]
O. E. Wood, Pres. J. Wadsworth, Sec.

OIL CITY PETROLEUM CO.
8 Pine street, [$500,000.]
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PACIFIC COAST PETROLEUM CO.
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RATHBONE OIL TRACT PET. CO.
69 Wall street. [$5,000,000.]
J. P. G. Foster, Pres. A. L. Purves, Sec.

RYND FARM PETROLEUM CO.,
8 Broad street, [$2,000,000.]
S. J. Macy, Pres. J. F. Jenkins, Sec.

SECOND NATIONAL PET. CO.,
100 Broadway, [$3,000,000.]
M. S. Frost, Prest. J. M. Bruce, Jr., Tr

TARR FARM PETROLEUM CO,
61 Cedar street. [$3,000,000.]
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UNITED REPUBLIC PET. CO.
74 Broadway. [$2,500,000.]
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UNITED PETROLEUM FARMS CO.
10 Pine street. [$10,000,000.]
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VIRGINIA & OHIO PETROLEUM CO.
51 Broad street. [$1,000,000.]
B. Schieffelin, Pres. E. Siebeer, Sc.

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J. N. Tappan, Pres. J. D. Fish, Treas.

WEST VIRGINIA OIL & COAL CO.
71 Broadway, [$3,000,000.]
A. F. Bell, Pres. F. A. Miller, Se.

Great Improvement
IN
Sewing Machines.
EMPIRE
SHUTTLE MACHINE!

Patented February 14th, 1860.

Salesroom, 536 Broadway.

This Machine is constructed on entirely new principles of mechanism, possessing many rare and valuable improvements, having been examined by the most profound experts, and pronounced to be SIMPLICITY and PERFECTION COMBINED.

It has a straight needle, perpendicular action, makes the LOCK or SHUTTLE STITCH, which will NEITHER RIP nor RAVEL, and is alike on both sides; performs perfect sewing on every description of material, from Leather o the finest Nansook Muslin, with cotton, linen, or silk thread, from the coarsest to the finest numbert.

Having neither CAM nor COG WHEEL, and the least possible friction, it runs as smooth as glass, and is

Emphatically a Noiseless Machine!

PRICE OF MACHINES,
COMPLETE:

No. 1, Family Machine, with Hemmer, Feller, Gauge, Braider, & Corder, complete. - - - $60
No. 2. Small Manufacturing, with Extension Table, $75
No. 3. Large Manufacturing, with Extension Table, $85
No. 3. Large Manufacturing, for Leather, with Rolling Foot and Oil Cup, 100

One-half hour's instructions is sufficient to enable any person to work this Machine to their entire satisfaction.

Agents Wanted in all Towns in the United States, where Agents are not already established. Also, for Cuba, Mexico, Central and South America, to whom a liberal discount will be given Terms, invariably CASH on delivery.

T. J. McARTHUR & CO.,
536 Broadway.

WILCOX & GIBBS
SEWING MACHINE

It is entirely noiseless.

A patented device prevents it being turned backward.

The needle cannot be set wrong.

It received the Gold Medal of the American stitute in 1863.

InSend for a circular containing full information, notices from the press, testimonials from those using the machine, &c.

JAMES WILLCOX,
Manufacturer, 508 Broadway, New York
Principal Offices:
NEW YORK—508 Broadway.
BOSTON—323 Washington street.
PHILADELPHIA—720 Chestnut street.
CHICAGO—133 Lake street.
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LONDON—135 Regent street.
HAMBURG—44 Hermann street.
PARIS—32 Boulevard de Sebastopol.
ST. PETERSBURGH—15 Gorochovay.
VIENNA—9 Wildpretmarket.
BRUSSELS—12 Rue Croisade.
SYDNEY, AUSTRALIA—292 Pitt street

GAS-BURNERS.

T. G. ARNOLD,
MANUFACTURER OF
GAS-BURNERS
And Importer of SCOTCH TIPS,
224 and 226 West 21st street,
formerly No. 447 BROOME ST., New York.
Mercury Cups, Portable Sockets, Burner Pillars, Burner Pliers, &c., &c.

C. GEFRORER,
Manufacturer of
GAS-BURNERS,
For Lighting and Heating Purposes.
GAS HEATING AND COOKING APPARATUS; FITTERS' BOYING APPARATUS, &c.
529 Commerce st., bet. Market & Arch, Philadelphia.

WOODEN PURIFYING TRAYS
PATENT
Conically Slotted Solid Wood Sieves
FOR PURIFIERS.

The Conically Slotted Solid Wood Tray or sieve was patented 21st October, 1862, and all persons are cautioned against purchasing them of any other person except the subscriber. The following companies are now using these trays.

Manhattan, New York,
Metropolitan,
New York
Albany,
Troy
Brooklyn, L. I.
Williamsburgh,
Citizens
Baltimore Md.
Louisville, Ky.
Chicago, Ill
Cambridge,
And numerous others

Orders received by mail or otherwise.
JOHN L CHEESMAN.
147 Avenue C New York City

WEST'S IMPROVED PUMPS, the most Simple, Durable, and Powerful, and the Cheapest in use.
J. D. WEST & CO.,
No. 40 Cortland street,

JOSEPH LENNIG,
1615, 1617, and 1619 Francis St.,
Above Ridge Avenue, Philadelphia, Pa.,
MANUFACTURER OF
WET & DRY GAS METERS,
STATION, SHOW, & EXPERIMENTAL METERS,
Photometers, Pressure Registers, Indicators, and Gauges, Governors. Meter Provers, Centre Seals, Fluid Gauges, &c.
GAS APPARATUS
Of the most reliable and approved construction manufactured and on hand at the
UNION GAS METER WORKS.

D. PARRISH, Jr.,
GAS ENGINEER
And Contractor for Coal or Oil Gas-Works.
Estimates given for Gas-Works, Gas-Holders, or any Gas Apparatus.
205 1-2 Walnut st., Philadelphia, Pa.
Box 1956, Post Office.

To Manufacturers of Petroleum Gas.

For sale, Parrish's Patent Gas and Air Mixer, adapted to all works using Petroleum or other oils, by which rich Petroleum Gas is mixed, after it leaves the holder, with a proper proportion of air, giving it the greatest illuminating power, without smoke, through any burners. The apparatus being attached to the outlet pipe, requires no alteration of the works.

Apply at the Gas-Works of St. Nicholas Hotel, No. 63 Mercer st., N. Y., where one can be seen in operation; or address D. Parrish, Jr., St. Nicholas Hotel, New York city, or No. 1416 Arch street, Philadelphia.

TO GAS COMPANIES.

THE UNDERSIGNED DESIRES TO undertake the supervision of several small Gas-works, to visit and examine them as often as may be necessary; to obtain and inspect their coal, castings, fire-brick, and other materials; and to manage their general business in such a manner that they shall be under such supervision as is now attainable in large works, at much increased cost. Also, to advise as general Consulting Engineer and expert in practical chemistry.

CHAS. M. CRESSON,
Late Asst. Engineer of the Philadelphia Gas-works
417 Walnut st., Philadelphia.

THE AUBIN
GAS-WORKS COMPANY,
Of Albany, N. Y.,

Now contract their works to make 16,000 feet of good Gas from 2,000 pounds of *hard* wood and 40 gallons of kerosene tar, *before payment can be demanded;* and the charcoal is worth the cost of the wood.

Many Village Gas Companies can be referred to.

R. D. WOOD & CO.,
MANUFACTURERS OF
CAST-IRON PIPE, RETORTS, &c.
Office, 400 Chestnut Street,
PHILADELPHIA.

Carrington & Co.'s
GENERAL
PURCHASING
AGENCY,
In Connection with all the Expresses
No. 30 Broadway,
NEW YORK.

Established 1854.

Purchases to order ANY article wanted from New York, (or from Europe,) for ladies' or gentlemen's use or wear,—comfort or luxury—from a cameo to a cashmere—a sea ring to a steam-engine.

Goods purchased at current City prices, and forwarded by Express, or as directed.

Commission, Five Per Cent.

Remittances, with orders, can be made by Express if preferred, as all Express Agents will take orders, receipt for and forward funds, and see to return of Goods.

SPECIAL CIRCULAR.

The Adams Express Company, appreciating the need of a capable medium connecting with the various Express Lines, through which personal and other orders for goods from this city, can be satisfactorily supplied, do recognize CARRINGTON & CO.'S GENERAL PURCHASING AGENCY as such a medium for filling orders for every description of goods wanted from New York, and commend it to the attention of the public, and of our general and local agents, recommending our agents to extend to it all reasonable aid, by facilitating the distribution of its cards and circulars, and making known the advantages it affords.

ADAMS EXPRESS CO.
By W. B. DINSMORE, Prest.
NEW YORK, June, 1864.

We cheerfully concur in the above recommendation of the Adams Express Company.
AMERICAN EXPRESS COMPANY,
By HENRY WELLS, Prest.
UNITED STATES EXPRESS COMPANY,
By D. N. BARNEY, Prest.
WELLS, FARGO & CO.,
NATIONAL EXPRESS COMPANY,
By J. A. ELLER
HARNDEN EXPRESS,
By L. W. WINCHESTER, Supt.
KINSLEY & CO.'S EXPRESS,
By E. LITTLEFIELD, Supt.
HOPE EXPRESS COMPANY,
A. D. HOPE, Supt.
BREESE & CO.'S EXPRESS,
By STEPHEN BREESE, Supt
NEW JERSEY EXPRESS COMPANY,
By GEORGE R. DUNN, Sup

The Greatest Improvement yet in the Sewing Machine Art!

A CURIOSITY WORTH SEEING!

Please send for circular with sample of sewing.

These Improved Machines SAVE ONE HUNDRED PER CENT. of thread and silk, and make the LOCK-STITCH alike on both sides.

They require no instruction to operate perfectly, except "the printed directions."

No change in sewing from one kind of goods to another.

And no taking apart to clean or oil.

Our NEW MANUFACTORY is now complete, with all its machinery and tools entirely new, and is already rapidly turning out Machines which for BEAUTY and PERFECTION of FINISH are not surpassed by any manufacture in the world.

N. B.—Should any Machine prove unsatisfactory, it can be returned and money refunded.

Agents wanted in counties not vassed by ur own agents.

Finkle & Lyon S. M. Co.
No. 303 BROADWAY, NEW YORK.

GROVESTEEN & CO.,

PIANO-FORTE MANUFACTURERS.

499 BROADWAY, NEW YORK.

The attention of the public and the trade is invited to our New Scale Seven Octave Rosewood Piano-Fortes, which for volume and purity of one are unrivalled by any hitherto offered in this marked. They conain all the modern improvements, French, grand action, harp pedal, ron frame, over-strung bass, etc., and each instrument being made under the personal supervision of Mr. J. H. Grovesteen, who has had a practieal experience of over thirty years in their manufacture, is fully warranted in every particular.

THE "GROVESTEEN PIANO-FORTE"

Received the highest award of merit over all others at the Celebrated World's Fair!

where were exhibited instruments from the best makers of London, Paris, Germany, Philadelphia, Baltimore, Boston, and New York; and also at the American Institute for five successive years, the gold and silver medals from both of which can be seen at our warerooms.

By the introduction of impro ements we make a still more perfect Piano-Forte, and by manufacturing largely, with a strictly cash system, are enabled to offer these instruments at a price which will preclude all competition.

PRICES.

No. 1, Seven Octave, round corners, Rosewood Plain Case $275.
2, Seven Octave, round corners, Rosewood Heavy Moulding, $300
No. 3, Seven Octave, round corners, Rosewood Louis XIV, style $325, a fac-simile of the accompaning cut.
TERMS—NET CASH, IN CURRENT FUNDS. Descriptive Circular sent free.

LILLIE'S

CELEBRATED

Chilled and Wrought Iron Safes,

WROUGHT IRON FIRE-PROOFS,

LOCKS AND VAULT DOORS.

These Fire-Proofs are manufactured to supply a demand for Security Against Fire, less expensive than my celebrated and superior Chilled and Wrought Iron Burglar and Fire-Proof Safes.

They furnish similar and equal security to the Safes generally manufactured in the different cities, but are SUPERIOR to them in their Fire-Proof qualities and durability, the iron being effectually rot ected from rust in any climate, and the Fire-proof not subject to lose its utility by age. This is n important advantage gained to the purchaser, as Safes often rust out and become worthless in wo or three years.

To substantiate my position, those purchasing these Fire-Proofs are at liberty, by giving me due notice of time and place of trial, to test them by fire with any other Safe of the same size; and should they not prove superior, I will refund the money, or a new Fire-Proof, as the purchaser may decide.

LIST OF SIZES & PRICES OF WROUGHT IRON FIRE-PROOFS

	Outside.			Inside.			
No.	Height.	Width.	Depth.	Height.	Width.	Depth.	Price.
6	40	31	27	31	21	15	$150
5	34	21	26	24	21	14	125
4	31	27	25	22	18	13	110
3	30	24	24	21	15	12	100
2	28	22	23	20	14	12	75
1	24	19	20	17	11	10	50

Sample of Fire-Proof Safe at Office of the Am. Ad. Agency, 389 Broadway, N. Y.

PRICE LIST.

LILLIE'S CELEBRATED CHILLED & WROUGHT IRON SAFES.

BANK, FIRE, AND BURGLAR SAFES.
Folding Doors, D Lock.

OUTSIDE.				INSIDE.			
No.	Height.	Width.	Depth.	Height.	Width.	Depth.	Price.
	In.	In.	In.	In.	In.	In.	
1	66	50	29	54½	39	18	$950
1½	59	50	26	48	39	15	800
2	53	44	27	42½	33	15	600

MERCANTILE F AND B SAFES.
Folding Doors and Monitor Locks.

3	50	42	27	40	32	16	$500
4	46	42	27	36	32	16	450
4½	38	46	27	28	36	16	420
5	42	38	27	31½	27½	15	350

Single Doors and M. Lock.

6	38	35	26	27½	23½	15	$250
7	34	31	26	24	21	14	200
8	31	28	24	21	18	13	175
9	30	24	24	21	15	12	140
10	26	22	22	19½	18½	12	120
11	24	20	18	17	17	10	100

HOUSE SAFES.

SIDE BOARD	$600
DINING ROOM	350
PANTRY (No. 1)	275
PANTRY (No. 2)	150
DUODECAGON BANK LOCK	100
MONITOR SAFE do.	50
SAFE do.	10

NATIONAL BANK SAFES,
With 2 Inside Burglars and 1 D and 2 M Locks.

OUTSIDE.		INSIDE.			
No.	Height.	Hei	Width.	Depth.	Price.
	In.	In.	In.	In.	
1	68	55	39	18	$1,200
2	61	48	39	18	1,050
3	57	42½	33	18	900

BANK VAULT BURGLAR SAFES,
With Folding Doors and D Lock.

0	68	58	27	64	48	20	$1,000
0½	61	53	27	55	46	20	800
1	57	47	27	49	40	20	600

BANK VAULT BURGLAR SAFES,
Single Doors and D Lock.

2	53	32	26	49	28		
	42	36	22	38	32	19	
4	36	31	20	32	27		
5	30	24	18	26	20	14	

BANK VAULT DOORS AND FRAMES,
D and S Lock.

No.	Height clear.	Width clear.	Depth adjustable.	Price.	Weight.
	In.	In.	In.		
1	78	27	20	$400	3,000
2	72	27	20	275	1,500

Orders received and filled at net cash prices, by the AMERICAN ADVERTISING AGENCY, 389 Broadway, New York. All Safes shipped from Troy free of cartage.

Business Department, E. ALVORD. Correspon ling Dept., FOWLER & WELLS.

WEST'S IMPROVED PUMP.

Anti-F eezing, Double-Acting, Forcing, and Lifting

These Pumps have now been in general use a number of years, and give better satisfaction than any other, and are recommended as

THE BEST!

by CAPTAIN ERICSSON and other eminent engineers. We can refer to thousands using them, a guarantee that all will recommend them. They are more simple in construction, and work easie and cost less than all others.

"Our readers will find the double acting, improved pump of J. D. West & Co., one of the best in th ket. It is very simple, works to a charm, so that any child may use it; throws a steady continuous stream, and does not freeze in the coldest exposures, and is unusually cheap. We say this knowingly, and give the testimony of our own accord, without the knowledge or request of the proprietors."—*New York Evening Post, July 1st*, 1863.

"J. D. WEST & Co.: We are pleased to state that the Pumps we had of you about a year ago, have been in constant use, twelve hours each day, and raise for the use of our woolen factory, about 180 gallons per minute. They work with but little power, compared with pumps we have used before, and do not get out of repair, and are satisfactory in all respects.

"DUNLAP MANUFACTURING CO."

Solon Robinson to the Farmers' Club.

Jan. 23.

"No farmer who owns a well or cistern can possibly afford to be without an iron pump. It should be a once a suction and force pump—a perfect little fire engine—such a one known as 'West's Improved Pump.' I speak of this Pump because I happen to know it.... to be very simple, durable, powerful and cheap, and it don't freeze up, nor get out of order once a year..., I know this, and think I may be doing the farmers good by speaking of it.... A boy ten years old can work it, and throw a continuous inch-and-a-quarter stream... It can be made to work in deep wells as well as in shallow ones."

"The undersigned having to use "West's Improved Pumps," cheerfully recommend them as simple, durable, and powerful in raising and throwing water, and for their ease of action, security against frost, and low price, we believe them superior to all others.

"WARREN LELAND, Met. Hotel, N. Y.
"J. W. POMEROY, Yonkers, N. Y.
"JOHN MESSEREAU, N. Y.
"DOMINICK LAWRENCE, Westchester."

From the New York Observer.

"We have had in use for months past one of West's Pumps, which has given us more satisfaction as a force and lifting pump than any we have ever used. It is one of great power, and well adapted for ship's decks, mines, factories, greenhouses, graperies, etc. *The Mining Chronicle and Railway Journal* says: 'It is recommended for its extreme simplicity of construction, great strength, and consequent durability and cheapness of repair. There is no stuffing-box—the pressure being held by a cup packing, like that upon the working-piston, working in a cylinder, fitted for the purpose within the upper air chamber—which we think a great improvement, as stuffing is so liable to be deranged and leak under strong pressure, to say nothing of the loss by friction incident thereto. It has also two air-chambers; thus the action of the valve is cushioned upon both sides by air—preventing water-hammer and vacuum-thump. The valves are very accessible and simply and cheaply repaired. They work much easier than any pump we have ever seen; the 4-inch cylinder being worked by children in wells 100 feet deep, and as they are extremely cheap, as well as simple and strong, we freely recommend them.'"

"CAMBRIDGE MINE, N. C., June 15, 1863.

"J. D. WEST & Co.—Gents: The Pump which I ordered for our mine is received, and put to work in our underlay shaft, which we are sinking. We find that one man will, with ease, lift 50 gallons per minute. We lifted in three and a half hours all the water in the shaft, which measures seven by twelve feet and thirty feet deep, and it was full when we commenced. It answers our expectations in every respect, and our workmen are highly pleased with it. It will do great service with but trifling expense for repairs.

"Yours, respectfully, BURR HIGGINS."

"This may certify, that I have been using, at my manufactory, for the last four years, 'W s Improved Pumps.' I now have in use three of said Pumps, one of which is kept constantly work, 24 hours of each day (save Sunda , and has been running for the past two years. I pronounce them, unhesitatingly, the best Pumps that have been brought to my notice, having used many others previously. They are simple in their construction, and not easily disarranged.

"N. Y., Oct. 10, 1859. JAS. A. WEBB."

We have plenty more such certificates, but think these are enough. For Pumps, Hose, Pipe, etc., address or call upon

J. D. WEST & CO., 40 Cortlandt st., New York.

Orders may be sent through the AMERICAN ADVERTISING AGENCY, 389 Broadway

EDDY'S

Kerosene Cooking & Heating

STOVES AND RANGES.

THESE COOKING STOVES WILL

☞ *Bake, Boil, Stew, Fry and Roast,*

With the greatest economy and facility, and without heating the room in which they are used. They are perfectly simple, operating like an ordinary Kerosene Lamp with a chimney, and are the only Kerosene Stoves that burn without smoke or odor.

"We have been perfectly astonished to see what a labor-saving, dirt saving and heat-saving institution is EDDY'S PATENT KEROSENE STOVE. Taking the cost of running it, and the result attained, it is the best patent in the market."—*Worcester Daily Spy.*

Our Heating and Cooking Stoves are very convenient and economical, especially where a fire is required but a few hours at a time.

Orders for Stoves may be sent through American Advertising Agency, 389 Broadway, New York.

LESLEY & ELLIOT,

Manufacturers, No. 494 Broadway, New York.

Send for Illustrated Circular. (136

KNITTING MACHINES

FOR

Families and Manufacturers,

☞ *Something New and Invaluable for Family Use.*

We offer the public the simplest, strongest and best Knitting Machine in the world.

It occupies but little space—is portable and can be attached to a stand or table, weighs about 40 lbs.

It will knit a variety of Stitches—the breakage of needles is trifling—the cost of needles is insignificant and the most delicate material can be knit pure and spotless, as the needles are not oiled.

Orders for Machines may be sent through the American Advertising Agency, 389 Broadway, N. Y.

Send for a Circular—Agents wanted.

DALTON KNITTING MACHINE CO.,

137] 537 Broadway, N. Y.

WEED'S

HIGHEST PREMIUM

Shuttle Sewing Machine

Has only to be seen and operated to be Appreciated.

Call and see for yourself before purchasing. Please bring samples of various kinds of thread, (such as is usually found at stores,) and various kinds of fabric, which you know the former most popular Sewing Machines either cannot work at all, or, at best very imperfectly.

SUPERIORITY.

over any other Machine in the market will be seen at a glance.

1st It runs easily and rapidly, and is so constructed as to endure all kinds of hard usage.

2d. No breaking of threads in going over seams.

3d. No imperfect action of the feed at uneven places in the work.

4th. The Weed-stitch catches of itself, and will sew from the finest lace to the heaviest leather, and 20 cotton to coarse linen thread.

5th. The Weed Machine will do beautiful quilting on the bare wadding, without using inner lining; thus leaving it soft as if done by hand.

6th. The variety of fancy work that can be done on the

WEED MACHINE,

with so little trouble, makes it equal, if not superior, to six machines combined; for instance, it Binds, Hems, Tucks and Sews on the band at the same time, and in face, the

WEED NO. 2 MACHINE,

as before stated, is equivalent to a combination of any six ordinary machines.

Orders for Machines may be sent through the American Advertising Agency, 389 Broadway, N. Y.

Below we give a few prices:

No. 2. Oil Black Walnut, Ornamented with Hemmer.	$60,00
No. 2. Oil Black Walnut, Hall Case, Ornamented, with Hemmer.	65,00
No. 3. Extra Oil-Polished Black Walnut, Half Case, Large Table beautifully Ornamented.	75,00

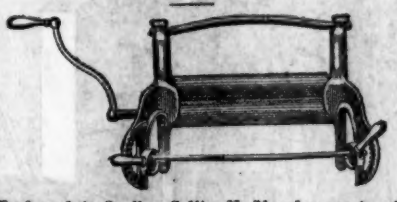
WEED SEWING MACAINE Co.,

86) 508 Broadway, New York

PUTNAM'S CLOTHES WRINGER.

IT IS THE ONLY RELIABLE

Self-Adjusting Wringer.



No Wood-work to Swell or Split. No Thumbscrews to get out of order. Warranted with or without Cog wheels.

It took the First Premium at Fifty-seven State and County Fairs in 1863, and nearly double that number in 1864, and is, without an exception, the *best* Wringer ever made. Patented in the United States, England, Canada, and Australia. Agents wanted in every town, and in all parts of the world. Energetic agents can make from $5 to $10 per day.

WHAT EVERYBODY KNOWS, VIZ.:

That Iron well galvanized *will not rust.*

That a *simple* machine is better than a complicated one.

That a Wringer should be *self-adjusting, durable, and efficient.*

That thumb-screws and fastenings cause *delay* and *trouble* to regulate and keep in order.

That wood soaked in water will *swell, shrink,* and *split.*

That wood-bearings for the shaft to run in *will wear out.*

That the Putnam Wringer, with or without cog wheels, will *not tear the clothes.*

That cog-wheel regulators are not essential.

That the Putnam Wringer has *all* the advantages, and *not one* of the disadvantages above named.

That all who have tried it pronounce it the *best* Wringer ever made.

That it will wring a thread or a bed-quilt *without alteration.*

We might fill the paper with testimonials, but insert only a few to convince the skeptical, if such there be; and we say to all, *test* Putnam's Wringer. Test it *thoroughly* with *any* and any others, and if not entirely satisfactory, return it;

PUTNAM MANUFACTURING CO.—*Gentlemen:* I know from practical experience that iron well galvanized with zinc will not oxydize or rust one particle. The Putnam Wringer is as near perfect as possible, and I can cheerfully recommend it to be the best in use. Respectfully yours,

JOHN W. WHEELER, Cleveland, O.

Many years' experience in the galvanizing business enables me to indorse the above statement in *all particulars.*

JOHN C. LEFFERTS, No. 100 Beekman St.

NEW YORK, *January*, 1864.—We have tested Putnam's Clothes Wringer by practical working, and know that it will do. It is cheap; it is simple; it requires no room, whether at work or at rest; a child can operate it; it does its duty thoroughly; it saves time, and it saves wear and tear. We earnestly advise all who have *much* washing to do, with all intelligent persons who have *any*, to buy this Wringer. It will pay for itself in a year at most. HORACE GREELEY.

PRICES—$8, 9, and $10.

Sample Wringers sent, express paid, on receipt of price.

Manufactured and sold, wholesale and retail, by

PUTNAM MANUF'G CO.,

18 PLATT STREET, New York,

BENNINGTON, Vt.,

CLEVELAND O.

WATER AND GAS PIPE.

The Boston Bituminized Pipe Company,

Are now manufacturing and prepared to take orders, for their PATENT PIPE, (from 2 to 12 inches in diameter,) as a substitute for Iron, Copper, Lead, &c., for the conveyance of WATER, GAS, SEWERAGE, &c. &c.

From the testimonials received, and the entire satisfaction it has given those having it in use, we feel warranted in claiming for this pipe over that of any other, the following advantages, viz:

It is much CHEAPER—has great strength (it having been tested to 500 lbs. to the square inch,) combined with LIGHTNESS, costing less for transportation; the joints are easily made and perfectly tight; it does not expand or contract from different degrees of temperature, and is free from *CORROSION* or *CONCRETIONS* forming; does not impart any taste or injurious properties to water, and as far as anything can be said to be indestructible, we deem this to be.

As a GAS PIPE, we say it has no superior. The Lowell Gas Light Co., purchased and laid some of this Pipe last year, and have likewise subjected samples to a test of four month's duration in their dry lime purifiers, with the most satisfactory results, in fact establishing beyond a doubt, its perfect adaptation to the wants and requirements of Gas Companies, specimens of which, together with the statement of E. Cushing, Esq., Agent Lowell Gas Light Co., who made these experiments I shall be pleased to show, and give all other needed information, by applying in person, or by letter, to JOHN L. WEBSTER, Treas.,

Boston Bituminized Pipe Co.,

127] No. 2 Pearl st. House, Boston.

AMBROSE SPENCER GILCHRIST,

(LATE CAPT. U. S. V.,)

CIVIL, MINING

AND ARCHITECTURAL ENGINEER,

No. 200 BROADWAY, Office 12.

New York.

New York, April 18th, 1864.

We respectfully invite your attention to and consideration of the justly celebrated and reliable remedy for DYSPEPSIA, HEARTBURN, DEBILITY and PROSTRATION. The Proprietors are proud to acknowledge the unparalleled success which has attended the sale of their valuable preparation, known in nearly every portion of the civilized world as the

"GOLDEN BITTERS."

We risk nothing when we term them a *valuable preparation,* for they are one of the few articles of the present day which are not a humbug; and we are willing and able to satisfy any person or persons who will call upon us, that the celebrated "GOLDEN BITTERS" are a genuine *bona-fide hygienic* article. It is the wish of the proprietors that the virtue of the article be tested before condemning. A decision of their merits by any one who has tried them, is worth a million of purchased bogus testimonials.

For Creating a Healthy Appetite

they are invaluable, and are unequalled as a TONIC. They are mild in their action, and operate by giving *vigor* and *strength* to the system,—not by any change they produce in the solids, but through the medium of the living principle.

They are Purely Vegetable,

being composed of Gentian Root, Calamus, Sassafras, and many other remedial agents of the Vegetable world, all preserved in Jamaica Rum and Sherry Wine.

As a Beverage,

They are the most *wholesome, invigorating* and *palatable* stimulant ever offered to the public. And the fact of their being prepared chemically and scientifically, precludes the possibility of a bitter, unpleasant taste, common to Bitters generally offered for sale. We especially recommend them to LADIES, and particularly to those suffering from

DEBILITY, WEAKNESS, AND PROSTRATION.

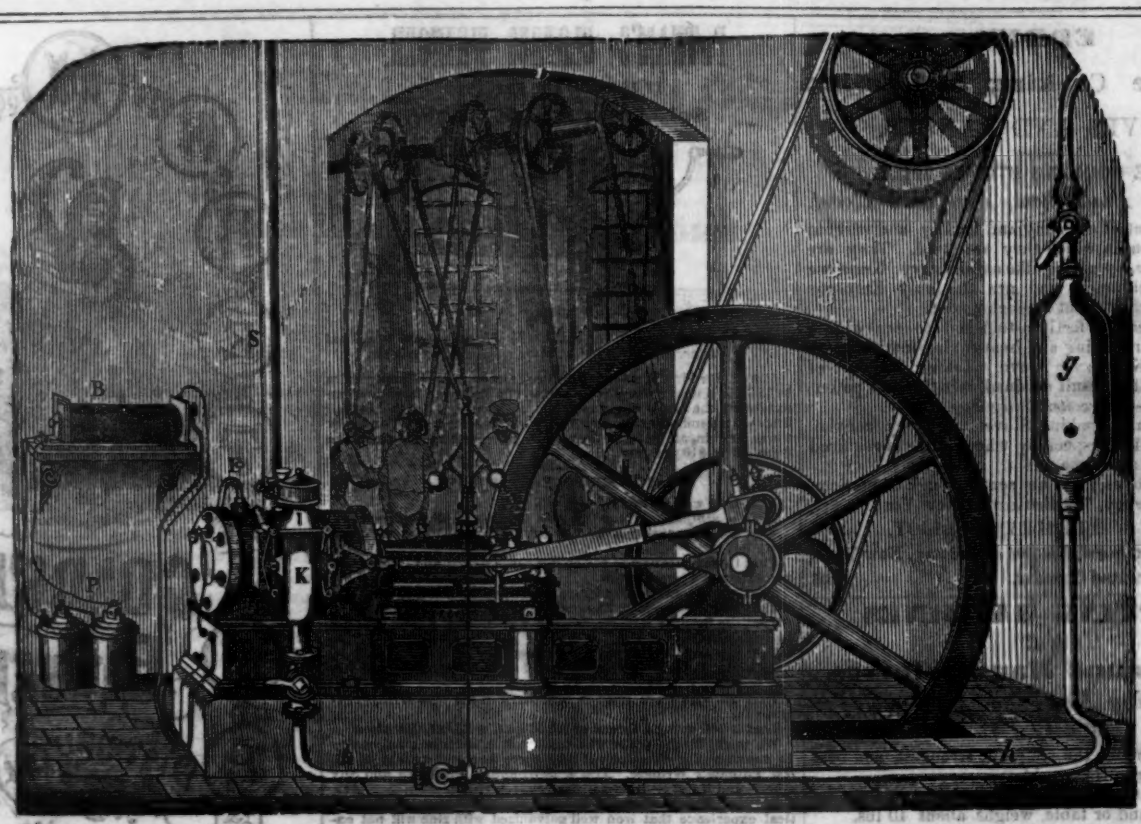
Half a wine glass of these "Bitters" three or four times a day, will produce a remarkable healthy change in persons greatly debilitated.

The "Golden Bitters" have been tried and not found wanting. They are put up in our own *Patent* quart bottles, and for sale by Druggists, Grocers, &c., throughout the world. Each bottle bears a fac-simile of the signature of Hubbel & Co.

GEO. C. HUBBEL & Co, Sole Proprietors

CENTRAL DEPOT, American Exp. Building, New York.

THE GOLDEN BITTERS.—We are not an advocate of stimulants or an alcoholic character; indeed we deprecate this "daily tonic" idea—this "morning toddy" which we see offered in all sorts of shapes as a recuperator, invigorator, revitalizer, &c. As a rule all artificial stimulants are dangerous remedies, and must be taken into the system as you would mercury or arsenic, in very small doses. But we have had an opportunity to try the now well-advertised article known as Hubbel's Golden Bitters, and are frank to say that where the system needs building up, where a stimulant is required to aid nature in restoring a lost appetite and infusing a vigorous action to the debilitated functions, we can recommend these Bitters. Hubbel's Golden Bitters are evidently intended to improve the debilitated human system, rather than to tickle the palate, and are, therefore a harmless and safe remedy keep in the house.—*New York Weekly Day Book.*



MOTEUR—LENOIR.

LENOIR GAS ENGINE.

This is a horizontal engine, in which a piston, by a connecting rod drives a horizontal shaft.

The gas enters by the pipe "h" from the regulating reservoir "g," (made of vulcanized india-rubber,) which regulates the feeding and the branches connected with the gas-pipe.

The tube, K, receives the gas conveyed by the pipe "h," and conducts it to the valve, which opens and closes alternately, by means of a rod moved by an eccentric wheel fastened to the end ot the shaft.

Two of Bunsen's piles, P, sufficient to produce the electricity are placed at a little distance from, and in communication with a Ruhmkorff electric apparatus, B. The electric current of this apparatus is conducted by means of insulated wires to the electricity distributor "m," placed on the front of the frame, while the current of electricity and its arrival at the inflammator, inserted at each end of the cylinder, is directed by the movement of the piston-rod, which, by an ingenious combination, impels a small movable slide before the distributor.

The burnt gas, after having performed its functions in the machine, escapes, by means of a valve, through a pipe, S, and the water designed to cool the interior of the cylinder enters through a double passage, by means of a pipe situated near the escape-valve, and goes out by the pipe, E.

A two horse and a half horse Engine are now in practical operation at the Dry Dock Iron Works, No. 435 East Tenth street, near East River, New York, where they are being manufactured, and those interested are invited to call and examine them.

THE LENOIR GAS ENGINE

Requires no Fire and makes no Smoke,

No Noise, no Dirt, and is thoroughly safe.

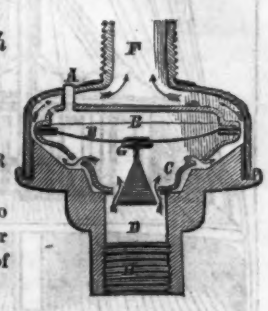
It is propelled by the expansion of Air, dilated by the combustion of Gas within the cylinder, ignited by the

ELECTRIC SPARK

NOTICE TO GAS COMPANIES AND GAS CONSUMERS.

THOMPSON'S PATENT GAS CONTROLLER,

The only Self-Acting Gas Controller, Regulator, and Burner Combined which has ever been invented, or known to science.



THE PRINCIPLE UPON WHICH THE THOMPSON'S AUTOMATIC GAS CONTROLLER works is one well known to mechanics, and is simple in its operation.

Within the circumference of a small cylinder below the burner is placed a conical valve attached to a movable diaphragm. The diaphragm rises or falls as the pressure of gas from the pipe is lesser or greater, and the valve acts upon the valve-seat with such regularity of movement that in a difference of em five-tenths of an inch pressure to five inches the variation in flame is hardly perceptible.

The simplicity of its machinery and the nature of the material used in its construction insure its regular action and durability.

In consequence of the uniform quantity of gas which passes the Controller to the burner, there is no waste, and a steady, soft flame is produced, which is important to all who read, write, or work by gas-light. The unsteady flickering blaze which invariably exists when the pressure of gas is beyond the requisition for consumption, has injured the sight of thousands who have been subjected to it.

For street lamps these Controllers are especially valuable, because the pressure varies materially during the night, and in consequence there is a waste of gas, and the light variable.

Improvements have lately been made in the mechanism of the Controller which makes them almost a perfect meter to each burner, and they are now offered to he public with more confidence than ever before.

Reference is permitted to the following named gentlemen—

Col. CHAS. ROOME, President Manhattan Gas Company, N. Y.
C. H. SAND , Esq., President Metropolitan Gas Company, "
J. H. ADAM, Esq., President New York Gas Company, "
PETER COOPER, Esq., Cooper Institute, "
JOHN A. DUFF, Esq., Olympic Theatre, "

GEO. H. KITCHEN, Inspector of Gas Meters, N. Y
A. L. BOGART, Esq., Gas Engineer.
Col. J. A. SABATTON, Engineer Manhattan Gas Company.
Col. A. J. WHITE, Engineer Metropolitan Gas Company.
J. K. SIMPSON, Esq., Engineer Cooper Institute.

Persons interested are invited to call at the Office, 111 Pearl street, where they can see the operation by pressure guage and test meters.

M. L GALLENDER, Agent
Office, 111 PEARL STREET.

THE AMERICAN METER CO.

Organized under the General Manufacturing Laws of the State of New York

SAMUEL DOWN, PRESIDENT. HENRY CARTWRIGHT, VICE PRESIDENT. RICHARD MERRIFIELD, SECRETARY AND TREASURER

TRUSTEES.

SAMUEL DOWN, WILLIAM HOPPER, R. H. GRATZ, HENRY CARTWRIGHT, RICHARD MERRIFIELD.
THOMAS C. HOPPER, *Superintendent at Philadelphia.*

This Company is now prepared to furnish WET AND DRY GAS METERS, STATION METERS, GOVERNORS, PRESSURE INDICATORS & REGISTERS, SERVICE and METER COCKS, and all other articles in their line appertaining to the use of Gas-Works.

The combination of Mechanical and Scientific Skill, and the long experience of the several members of the Company, is a sure guarantee of durability, accuracy and excellence of workmanship. Orders addressed

AMERICAN METER COMPANY,

West Twenty Second Street, New York. Arch and Twenty Second Streets, Philadelphia. No. 23 West Street, Boston will meet with prompt attention.

Harris & Brother, Practical Gas Meter Manufacturers,

Continue, as heretofore at their old Establishmen, No. 1117 CHERRY ST., PHILADELPHIA, to Manufacture

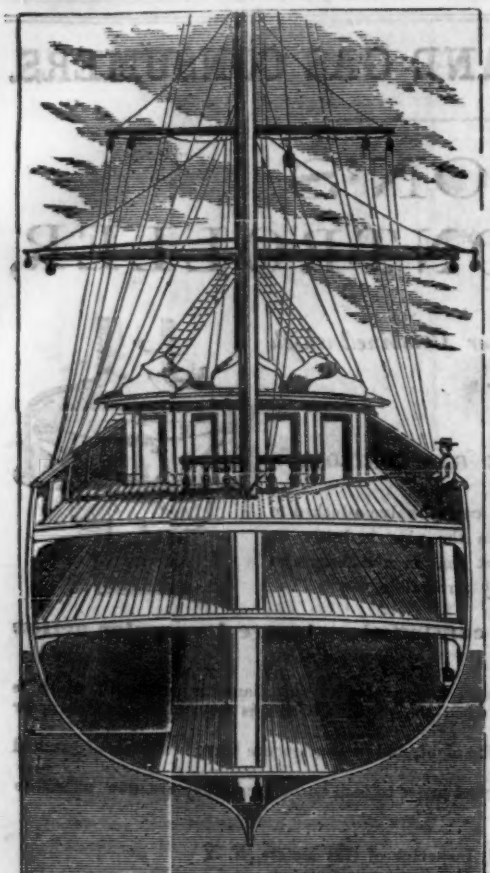
WET AND DRY GAS METERS, and all kinds of GAS APPARATUS, and nish all articles appertaining to the use of Gas Works. ☞OUR WORK WARRANTED—Satisfaction Guaranteed. Orders respectfully solicted, and promptly attended to, by
HARRIS & BRO., No 1117 Cherry st., Philadelphia.

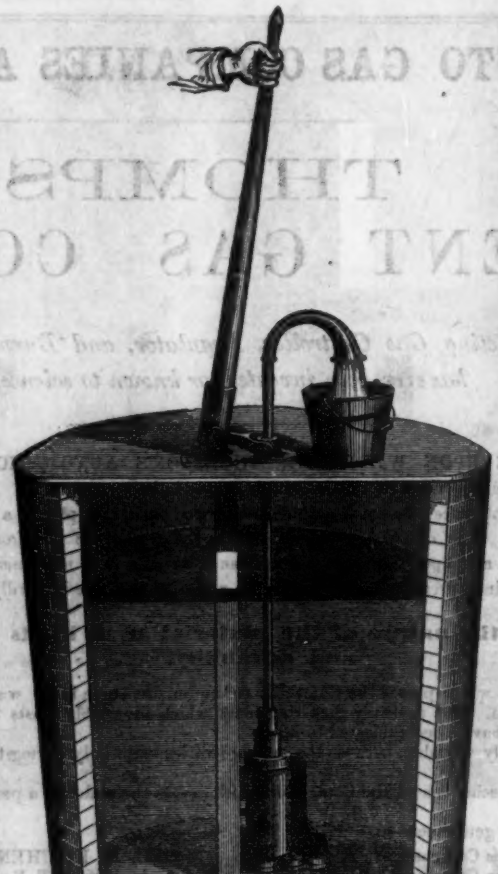
Messrs. Harris & Brother,
Philadelphia Gas Works, February 14, 1857.
Dear Sirs;—I take great pleasure in stating that we have found your meters to register with entire correctness, and to be generally of very good quality—the number furnished by you to these works is over 5,000.
JOHN C. CRESSON, Engineer;

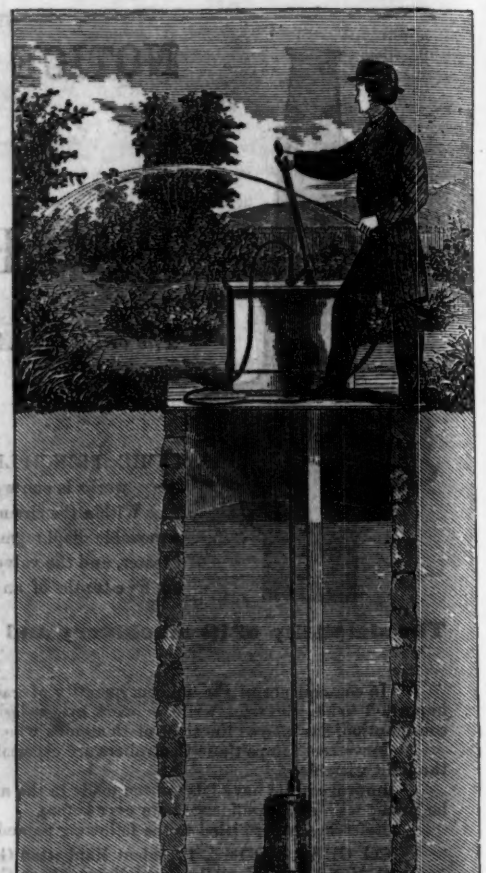
Office of the Gas Light Company of Augusta, Ga., March 6th, 1858.
This is to certify that having used meters manufactured by Messrs. Harris & Bro., for the last nine years, we do not hesitate to state they have given entir8 satistaction in point of wokmanship and accuracy of registration; they are surpassed by none, and equaled by few manufactories in the Union; we have used meters made by other establishments but our preference is in favor of those made by Harris & Bro., of Philadelphia, Pa.
G. S. HOOKEY, Superintendent of the Gas Light Company of Augusta, Georgia.

Messrs. Harris & Brother, Philadelphia.
Philadelphia, March 4, 1858.
Gentlemen—We take great pleasure in bearing our testimony to the very superior character of the meters we have received from your establishment. We have always found the workmanshipall we could desire, while the accuracy and reliability of their measurement have always been satisfactory. We have used meters made by other parties, and none have given as entire satisfaction as those received from you. We are, gentlemen, very truly, yours, BIRKINBINE & MCARA.

Messrs. Harris & Brother.
March 14, 1857.
Gentlemen—For the last ten years we have used in the Philadelphia Gas Works, meters made in your factory, and take pleasure in expressing my opinion to their correctness. On several occasions I have taken your meters apart, and found the material used in the manufacture of the same, to be as fine quality as is used in those imported from Europe, or made by any of the manufacturers in the United States. Respectfully Yours, GEORGE WIEGAND, Inspector of Gas Fittings, Philadelhia.







AMERICAN PUMP MANUFACTURING COMPANY,

DEPOT NO. 40 DEY STREET, NEW YORK.

A. B. VAN OLINDA, Secretary. C. V. B. OSTRANDER, Treasurer. E. BEADLESTON, President.

STATE AND COUNTY RIGHTS FOR SALE.

Pumps, completed, will be delivered from the manufactory of the Company, to parties purchasing rights at a royalty of One Dollar each.

THE PATENT SUBMERGED PUMP.

This valuable Invention, now first introduced, will, it is believed, supersede all classes for any purpose in use at the present time.

ITS ADVANTAGES.

First.—SIMPLICITY. The entire pump is composed of but six parts, all of cast-iron, which can be put together by any mechanic.

Second.—DURABILITY. From the fact that it is always submerged, it is perfectly lubricated, and requires no packing As no water can remain in the pipe when not in motion, there is no danger of freezing.

Third.—CAPACITY. It is contended that, for the power applied, this Pump excels all others. The No. 1 (the smallest size,) of this Pump, with the power of one hand, has a capacity of thirty gallons per minute, and will throw a stream seventy feet in the air.

Fourth.—CHEAPNESS. For economy, this Pump surpasses all others, its first cost being about one-third less than that of other Pumps of the same capacity, and being much less both in size and weight, there is a great saving in transportation.

ITS USES.

First.—For a House Pump; the smallest size of the patent Submerged Pump is sufficient for all family purposes. Placed in a well or cistern, water may be conveyed to every room in a common sized house.

Second.—For a Farm Pump; for all purposes connected with irrigating, watering stock, etc., etc. This Pump can be placed in running streams, ponds, bayous, etc., and water conveyed to any required distance.

Third.—For a Ship Pump; Any ship owner or captain, with short experience in the use of this Pump, will give his unqualified approval for ship purposes, either to be used as a bilge pump simply, or for washing decks, etc. From its simplicity, as a bilge Pump it will be found entirely free from choking, and will clear grain, dirt, stones, etc., with ease.

Fourth.—For a Factory Pump, or for air in Oil Wells, for Breweries, or for pumping acids, hot liquors, etc., it is invaluable. It cannot be affected by any liquid.

Fifth.—To all Directors and Officers connected with mining interests, the PATENT SUBMERGED PUMP presents great advantages.

The experience of the last five years have clearly proved at what great expense, both in first cost and freight, it has been necessary to be at to secure the proper means of expelling water from the mines, quarries, etc. With this Pump an immense saving is effected in both instances, as in first cost it is much less than other Pumps of the same capacity and power.

Its principle is that of a Double-acting Force Pump, with a heavy double-acting piston cast in one piece, and a double-acting iron valve within the same, without the use of leather valves or any packing whatever.

DIRECTIONS FOR ADJUSTING PUMPS.

1st. Find the exact measurement of the well or cistern from the extreme bottom to the top or curb, after which make such an allowance as may be required, above the curb or top, as will accommodate the sized vessel required to be used, and in respect to the quantity of pipe required, always deducting for the length of the Pump and the space between the bottom and the Pump. 2d. Provide a plank, to which the Pump must be secured, not less than seven inches wide by two or two and a half inches thick, which should reach from the bottom to the top of the well or cistern, always placing the plank on the side of the well or cistern. 3d. Before putting the plank into a well or cistern, fit and bolt the Pump to the plank, and screw the pipe firmly in, taking care to have the Pump not less than one foot from the bottom of a well, nor less than six inches from the bottom of a cistern. Yet, if the water be six feet deep in a well, then adjust the Pump three feet from the bottom, and in like proportion as the case will permit, always being governed by the depth of water in the well, and always observing the necessity of securing the plank at the bottom of the curb, by braces across the well, and standing perfectly plumb and solid under the platform or covering of the well, when the fulcrum can be fastened to the platform, taking care to give the pipe free action when in motion.